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SAFETY NEWS

APRIL 1955

Electronic Track Inspection

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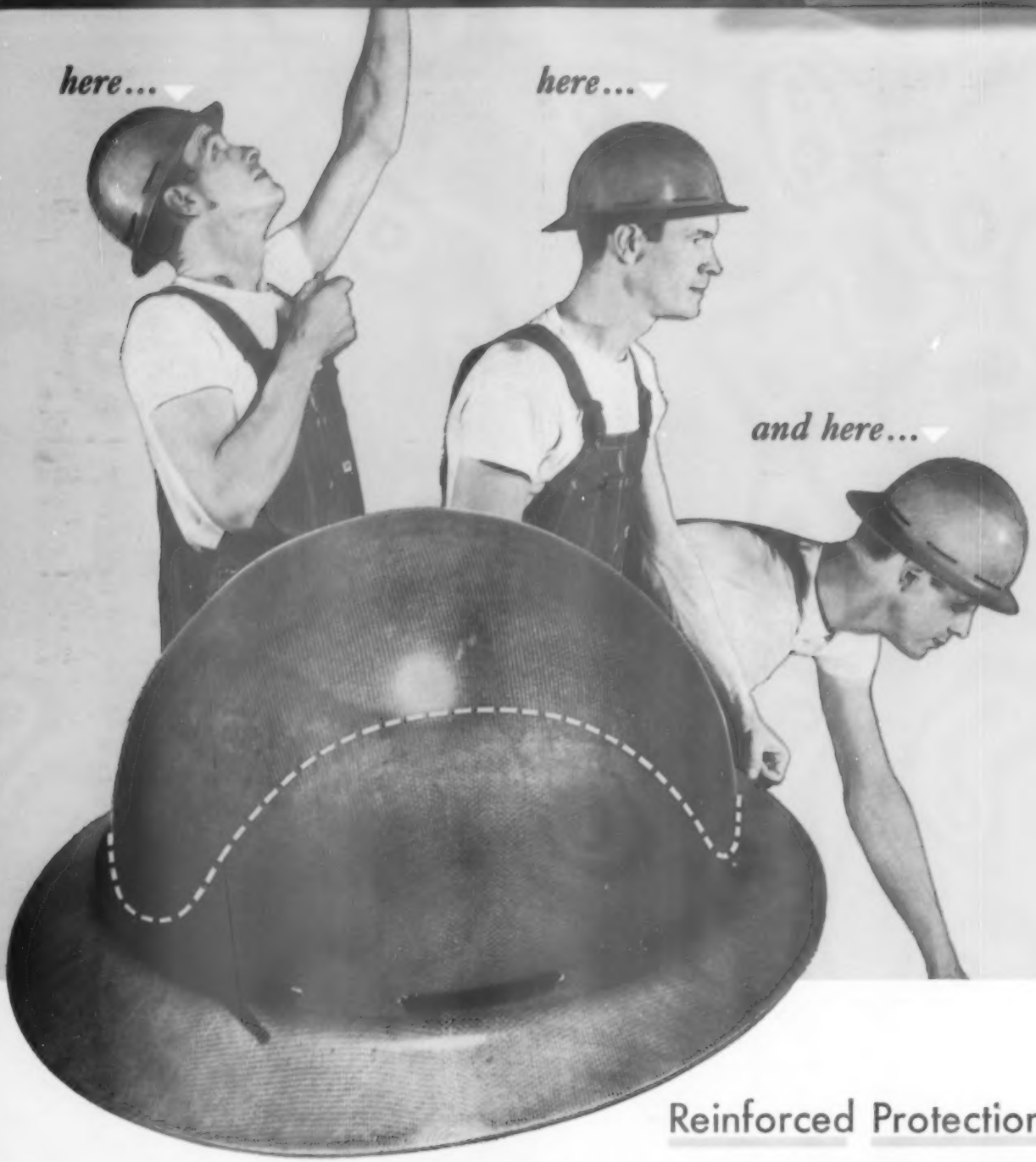
The Growth of Industrial Hygiene
Industry's Pack Mules
What Do Accidents Really Cost?



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National Safety Council Vol. 71 No. 4

SAFETY NEWS

Published monthly by National Safety Council

APRIL, 1955

THE COVER: Complex equipment in the operator's compartment at the rear of the Sperry detector car records the condition of the rails. Electronic signals are translated into inked lines on a continuously moving paper tape on the recording table.

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Wire from WASHINGTON

By HARRY N. ROSENFIELD
Washington Counsel, National Safety Council

HIGHWAYS AND INDUSTRIAL safety had the spotlight in safety matters as the Congress began to get into high gear.

Highways

The President's Message. The President submitted to Congress his long-awaited message on highways, and asked for "comprehensive and quick and forward-looking action" in approving "a general program that will give us a modern safe highway system." Of the four justifications advanced by the President for his program, the first was the reduction of accidents.

Without specifically endorsing it, the President forwarded to Congress the report of the President's Advisory Committee on a National Highway Program, the so-called Clay Committee (see *Wire from Washington,* March 1955), and called attention to the report by the Bureau of Public Roads pursuant to direction of the last Congress. These two reports, said the President, "provide a solid foundation for a sound program," and "show that a 10-year construction program to modernize all our roads and streets will require expenditures of $101 billion by all levels of government."

The Chief Executive stated that "the Interstate system [of highways] must be given top priority in construction planning," and that the "obvious responsibility" of the Federal government is "the development of the interstate with its most essential urban arterial connections."

The President made no definitive recommendations upon the controversial financing proposals of the Clay Committee, for the creation of a Federal Highway Corporation which would issue over $20 billion in 30 year bonds earning 3 per cent interest. However, he did say: "I am inclined to the view that it is sounder to finance this program by special bond issues, to be paid off by the above-mentioned revenues [from present gas and diesel oil taxes, augmented in limited instances with tolls] . . . pledged to this purpose, rather than by an increase in general revenue obligations." The President's press secretary later announced that this language constituted an endorsement of the financing proposal of the Clay Committee.

In one respect, however, the President departed from the recommendations of the Clay Committee. That Committee opposed the earmarking of Federal gas tax receipts. On the other hand, the President said, as above-noted, that these revenues could be "pledged" for repayment of highway bonds, and that highway users should provide "the total dollars necessary for improvement and new construction."

Legislative Developments. Congressional action on highway legislation started before receipt of the President's message. The Public Roads subcommittee of the Senate Committee on Public Works started extensive hearings on S. 1048, introduced by Senator Gore, subcommittee chairman. This bill would double the annual Federal appropriation for highway construction for the next 5 years, raising the annual appropriation to $1.6 billion to be made available to the States on a variable matching formula. In his testimony before this committee, Mr. F. V. duPont, special consultant to the Secretary of Commerce, stated: ". . . the paramount factor of highway safety cannot be ignored. . . . This tragic toll can be substantially reduced by replacement of obsolete and dangerous facilities with roads of modern design."

The Administration highway program was introduced as S. 1160 (Martin, Chavez, Case), which would be called "The National Interstate Highway Act." This bill provides for $25 billion in new Federal highway expenditures over a 10 year period.

Industrial Safety

S. 1091 was introduced by Senators Smith, Ives, Bender, Thye, Duff, Saltonstall, Case and Bush, to carry out the President's proposal to assist the States in the development and expansion of industrial safety programs (See *Wire from Washington,* March 1955).

Referred to the Committee on Labor and Public Welfare, this Administration bill would allot funds to States on the basis of the number of wage earners, industrial hazards, financial need, and other relevant factors. Each State would get a minimum grant of 15,000, and would be required to match Federal funds by 50 per cent after the first four years (and at a reduced rate prior thereto). The bill specifically excludes from applicability all coal mining subject to the Federal Coal Mine Safety Act.

The bill would grant funds to States upon approval by the U. S. Secretary of Labor of a State plan which must meet statutory standards. Among such standards, the plan must "include a program for the promotion of observance of safety precautions through the voluntary cooperation of employers and employees in industry, which program may include cooperation of any nongovernmental safety organization active in the States." (Section 3(a)(5).)

In a statement specifically pre-

—To page 97

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* * *

Will This Stop You?

OWNING A HOUSE of the 1894 vintage, which needs as much fixing as a 1926 Ford, I had several fairly ambitious projects lined up for this year's vacation.

Magazines and TV have been feeding the public a lot of intriguing do-it-yourself stuff. There is no limit to what you can do to the old homestead with a few dollars worth of wood or aluminum—plus a little easily acquired know-how.

This do-it-yourself craze has mushroomed into a six billion dollar annual business, which you can understand if you have tried recently to get any decorating or carpenter work done. It isn't merely the expense, though I'm cost conscious too. The professionals just aren't interested in anything short of building a new house or at least a major remodeling job.

So I had been planning a few odd jobs that would at least slow down the ravages of time at Crestfallen Manor. But after reading an article in a recent issue of *This Week* Magazine I've been wavering. It's entitled "A Warning to Home Handymen: When Not to Do It Yourself." It read like a press agent job for the contractors and the building trades unions.

And their advice is thoroughly sound and practical. When you take on that big job, you may bite off more than you can chew. You may violate building codes, or spoil a lot of expensive lumber. (You can easily carry home $10 worth on your back).

And, of course, you might get hurt. Most homes have a rickety ladder and a collection of tools that wouldn't be tolerated in even a backward factory. And how many basement workshops boast a pair of goggles? I have a pair, it is true, but you wouldn't believe me if I said I wore them every time I drove a nail.

Many home handy men are no longer young. Some have bad hearts, high blood pressure, and weak backs, and suffer attacks of dizziness on ladders. I'm in fair shape for my years but maybe I ought to go slow.

My skill with tools is nothing to brag about. When I cut a length of board it is usually too long or too short and the mitred joints are often a few degrees off, but putty and paint cover up a lot of bad workmanship.

Many a job I've started light heartedly got me in deeper than I expected. Sometimes I've even had to call in a professional (a humiliating experience) to bail me out of the mess. But a job completed does something for your ego, even though it lacks something artistically.

The do-it-yourself enthusiasts are an ambitious lot, not likely to be discouraged by even good advice. The work is much too fascinating. And I have a hunch that fear of spoiling expensive material will deter more folks than the prospect of getting hurt.

By vacation time I'll probably have forgotten that discouraging article.

* * *

In This Issue . . .

THOSE OF US who can remember as far back as the Pan American Exposition can appreciate how far we've traveled since then—electronics, automation, nuclear developments—and we haven't seen anything yet. As Donald C. Potts warns us in the lead article these developments are changing job descriptions, bringing more specialization and a better educated working force. This will require more skilled and far-seeing leadership, in safety as well as in other departments of industry. And particularly fine is Mr. Potts' interpretation of the way industrial people can serve their communities. (Page 18).

* * *

Some time ago a writer in the NEWS described chemical progress as developing materials that would resist all known solvents and then developing something to dissolve the insoluble compound. Since many of these solvents have the same affect on human tissues, the industrial hygienist has become an important member of the safety team. (Page 20).

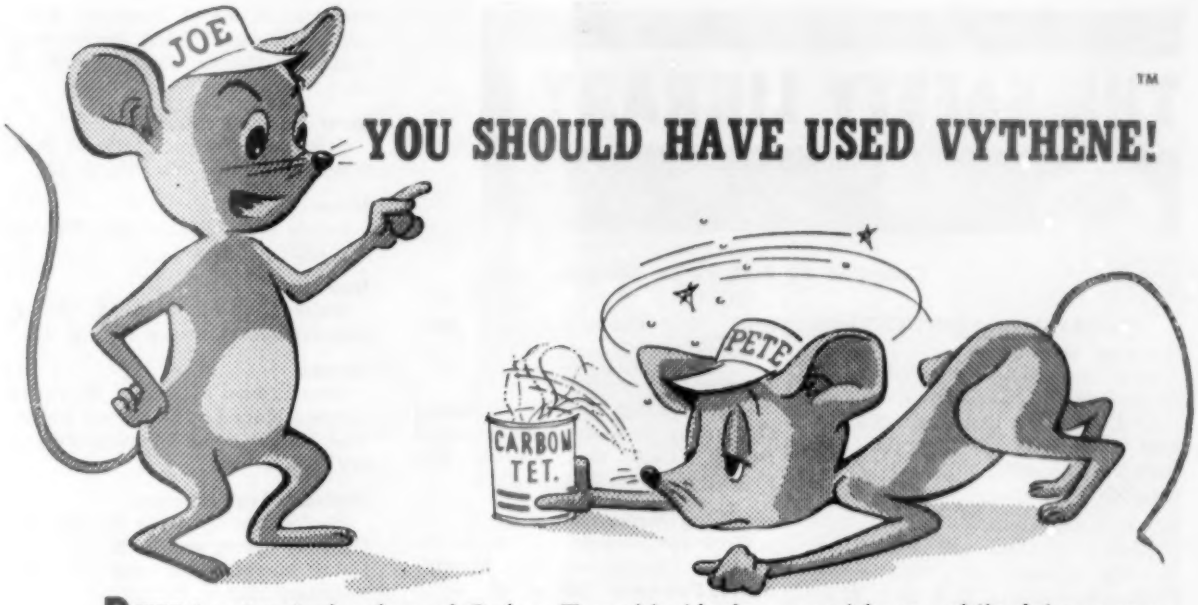
* * *

Home projects are full of hazards for the do-it-yourself enthusiasts, some of whom disregard the training they've received on the job. A pair of goggles in every home is a desirable goal, but the real obstacle to eye protection is "the job'll only take a minute." (Page 22).

* * *

Materials handling gets quite a play this month. There are some helpful hints about the selection and use of hand trucks which still give faithful service in a mechanized age. (Page 30). One of the difficulties in using fork trucks and other equipment powered by gasoline, LPG and diesel fuel oil has been the noxious monoxide and hydrocarbon fumes in the exhaust. Now a catalyst in the muffler oxidizes the toxic elements. (Page 34). And for safe and efficient materials handling, watch the floors as well as the trucks. (Page 26).

Carman Fish



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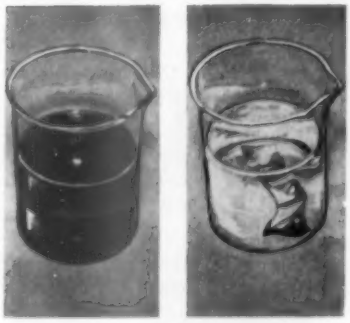

The left beaker contains "inhibited" 1, 1, 1—Trichloroethane which has *broken down*. An aluminum strip, while immersed in the solvent, was gouged with a screwdriver—using forceful, rotating action. (Temperature of 72° Fah.)

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BOOKS AND PAMPHLETS

Accident Statistics

American Standard Method of Recording and Measuring Work Injury Experience. American Standards Association, 70 East 45th St., New York 17., 1955, p. 15. Z16-1-1954 revised, 50c.

Air Pollution

Control of Emission from Metal Melting Operations. American Foundrymen's Society, Golf and Wolf Roads, Des Plaines, Ill., 1955, 26p. $1.50 to members; $2.25 to non-members.

Chemicals

Methylamines. Manufacturing Chemists' Association, 1625 Eye Street, N. W., Washington 6, D. C., 1955, 19p. Chemical Safety Data Sheet SD-57, 25c.

Fire Protection

Electric Generating Plants, Occupancy Fire Record. National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass., 1955, 12p. Fire Record Bulletin FR55-1, 50c.

Truck Terminals—Occupancy Fire Record. National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass., 1955, 8p. Fire Record Bulletin FR55-2, 50c.

Marine Industry

Safety Manual for Marine Oil-Fired Watertube Boilers. National Safety Council, 425 N. Michigan, Chicago 11, 1955, 63p. $1.50 to members, $3.00 to non-members.

Mines

Mine Gases and Methods of Detecting Them. U. S. Bureau of Mines, 1954, Revised, 82p. Miners' Circular 33. 55c. For sale by the Superintendent of Documents, Washington 25, D. C.

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Civil Defense

Disaster Plans Are Perfected for Kanawha Valley, W. Va. G. J. Ratcliffe. The Plant, February 1955, p. 42.

Dust

Dust Control in Coal Handling Operations Profitable Investment at Detroit Edison. W. O. Vedder. The Plant, February 1955, p. 62.

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Work Sampling Sold Safety for Us. Factory Management and Maintenance, February 1955, p. 92.

Electricity

Equipment Grounding: Is It Really Protecting Your Plant? R. H. Kaufmann. Power, February 1955, p. 77.

Health

Epidemiological Studies of Coal Miners' Pneumoconiosis in Great Britain. C. M. Fletcher. AMA Archives of Industrial Health, January 1955, p. 29.

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Parathion Poisoning—A Brief Review. D. C. Hamblin and H. N. Golz. Industrial Medicine and Surgery, February 1955, p. 65.

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Meat Packing Industry

Safety by Design. National Provisioner, January 29, 1955, p. 22.

Mines

Safety in 1954. Coal Age, February 1955, p. 73.

Noise

Noise Control. John E. Hyler. Supervision, February 1955, p. 20.

Nurses

Occupational Health Nursing Service. Mary Louise Brown. Industrial Medicine and Surgery, February 1955, p. 84.

Physical Examinations

Health Examinations in Industry. C. A. D'Alonzo and S. M. Rodgers. Industrial Medicine and Surgery, February 1955, p. 75.

Power Presses

Safety Control for a Cycling Press. Jay Retsema. The Tool Engineer, February 1955, p. 103.

Printing Industry

Efficient Management Can Enjoy Desirable By-Products. Lillian Stemp. The Industrial Printer, February 1955, p. 46.

Railroads

Safety on the Spot. Modern Railroads, February 1955, p. 87.

Sawmills

Safety and Cleanliness Rule. The Lumberman, February 1955, p. 59.

Standards

Standards for Safety—Their Nature and Value. The Magazine of Standards, January 1955, p. 12.

Welding

Safe Practices in Welding. W. Schweisheimer. Pulp and Paper Magazine of Canada, February 1955, p. 108.

Value Buying

Value buying has become a science. It is past the groping, experimental stage. Obviously, there is still much to be learned and further progress to be made. Meanwhile, effective techniques have been developed.

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Stuart F. Heinritz, Editor, Purchasing

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American Greetings Corp., Cleveland. Entire company.

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American Optical Co., Southbridge, Mass.

American Potash & Chemical Corp., Los Angeles. Entire company.

Aro, Inc., Arnold Engineering Development Center, Tullahoma, Tenn.

Auto-Soler Co., Atlanta, Ga. Entire company.

AVCO Manufacturing Corp., New Idea Division, Coldwater, Ohio.

Bayuk Cigars, Inc., Philadelphia.

Behr-Manning, Division of Norton Co., Troy, N. Y.

The Borden Co., Michigan Milk Division, East Detroit Branch.

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The Buckeye Cotton Oil Co., Six Awards: Cellulose & Specialties Division; Greenwood (Miss.) Plant; Hollywood Mill; Jackson (Miss.) Plant; Louisville Plant; Montgomery (Ala.) Plant.

The Buckeye Steel Castings Co., Columbus, Ohio. Entire company.

Bucyrus-Erie Co., Twelfth St. Plant, Erie, Pa.

Campbell Red Lake Mines, Ltd., Balmertown, Ont., Canada.

Carrier Corp., Syracuse, N. Y. Entire company.

Caterpillar Tractor Co., Joliet (Ill.) Unit.

Champion Paper & Fibre Co., Hamilton, Ohio.

The Cleveland Electric Illuminating Co., Cleveland, Ohio. Entire company.

Consolidated Mining & Smelting Co. of Canada, Ltd., Tulsequah (B. C.) Mines.

Consolidated Paper Corp., Ltd., Belgo Division, Shawenigan Falls, Quebec.

Continental Air Lines, Inc., Denver, Colo. Entire company.

Continental Foundry & Machine Co., Iron Foundry, Wheeling, W. Va.

Corhart Refractories Co., Inc., Louisville, Ky.

Crossett Paper Mills, Crossett, Ark.

Crucible Steel Co. of America, Two awards: Midland Works; Sanderson-Holcomb Works.

Deere & Co., Horicon (Wis.) Works.

Dierks Forests, Inc., Wright City (Okla.) Unit.

Donalda Mines, Ltd., Noranda, Quebec, Canada. Entire company.

Downington Paper Co., Downington, Pa. Entire company.

Electro Metallurgical Co., Four awards: Alloy, W. Va.; Marietta, Ohio; Niagara Falls, N. Y.; Sheffield, Ala.

The Firestone Tire & Rubber Co., Two awards: Akron, Plant No. 1; Akron Steel Products Plant.

Fraser Paper Co., Ltd., Madawaska, Me.

The Gardner Board & Carton Co., Two awards: Lockland, Ohio; Middletown, Ohio.

The Garrett Corp., AiResearch Manufacturing Co., Los Angeles.

General Electric Co., Three awards: East Cleveland Lamp Works, Nela Park; Erie (Pa.) Works; St. Louis (Mo.) Lamp Works.

General Motors Corp., Detroit. Entire company.

General Plywood Corp., Tarboro (N. C.) Plant.

General Steel Castings Corp., Eddystone, Pa.

Godchaux Sugars, Inc., Reserve, La.

The B. F. Goodrich Co., Akron. Entire company.

The Goodyear Tire & Rubber Co., Three awards: United States Plants; Cuba Plant; Brazil Plant.

A. P. Green Fire Brick Co., Mexico, Mo.

Hammerhill Paper Co., Erie, Pa.

Harper-Wyman Co., Chicago. Entire company.

Hercules Powder Co., Wilmington, Del.

—To page 76

Easy on the and

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IRON AGE DIVISION • H. CHILDS & CO., INC. • PITTSBURGH 12, PA.

CASES for COMMENT

Compiled by
ROBERT D. GIDEL
Senior Consulting Engineer
Industrial Department, NSC

IS THAT INJURY chargeable to your occupational injury record?

In some cases there is reasonable doubt as to whether the injury arises out of or in the course of employment. This can usually be decided by consulting ASA STANDARD CODE Z16.1-1945. If there is any doubt as to interpretation of the Code, the Committee of Judges of the American Standards Association's Sectional Committee is available to review the facts.

A few cases are discussed here. It is hoped they will aid readers not only in determining the chargeability of accidents but also in planning preventive measures.

Week-end Treatment

On Friday morning an employee was taking side panel storage racks apart with a wrecking bar when one of the ½" x 3" boards split off, and a portion of the board with a sharp splinter end fell about three feet and struck through his clothing into his left thigh just above the knee. The Medical Department found "a pinpoint puncture wound approximately two inches above the left knee to left lateral area. No foreign body was found and the X-ray which was taken was found negative." The employee continued working the rest of the day.

However, on the next Tuesday morning, Monday having been a holiday, the employee's wife telephoned that her husband could not work because of pain in the knee. The employee was requested to report to the medical department for further observation. On examination later the same morning the employee was found to have a temperature of 100 degrees and a swollen knee. It was determined that the employee was suffering from infection of the knee joint which required his being sent to the hospital for a period of from 10 to 14 days.

The plant physician felt that this injury was not sufficient to cause the employee to lose time and that it could have been brought under control if the Medical Department had had an oportunity to see the patient over the three-day holiday weekend.

Decision. This injury should be included as a temporary total disability with time to be charged in accordance with the actual days lost, since the injury arose out of and in the course of employment.

Comment. This case brings up the question as to how closely should the medical department follow up on injuries. Should special facilities be set up for treating employees injured just before a weekend or holiday period? Several companies have arranged for a nurse to visit daily all persons absent from the plant to lend whatever aid is possible. Possibly, some similar arrangement should be set up to handle cases which might become serious over the period of a weekend.

Injured at Lunch

A warehouseman in the Shipping Department had just finished his lunch near the shipping platform steps during his regularly scheduled lunch hour. As the employee stood up, he stepped on a board which had been thrown from a trailer truck standing nearby. As the board sprang upward, a nail in one end scratched his ankle. The doctor diagnosed the case as abrasion and cellulitis of right ankle and the probable length of disability at two weeks.

Decision. This injury should be considered a temporary total disability and should be included in the frequency and severity rates in accordance with the actual time lost. The hazard which caused the accident was a part of the environment of the employment and resulted in its chargeability, even though this injury actually occurred during the lunch hour.

Comment. This illustrates the need for good housekeeping practices and control of physical facilities even during times employees are not engaged in productive activities. The employee's environment is controlling in most instances unless an overt act of the employee specifically takes him outside the scope of his employment.

Section A1.6 (h) entitled "Lunch Period Injuries" in the revised code Z16.1-1954 describes the various situations controlling here.

Contrary to Instructions

A truck driver was driving a tractor trailer unit used in transferring structural steel members from an unloading area to the location at a building where they were to be erected. The structural members on the truck were to have been unloaded by an erecting crane. The driver parked his truck so that this crane could unload it. The crane was not ready to unload the truck immediately, so the driver having nothing else to do, though contrary to instructions, left the vicinity of his truck and went to where a shake out crane was operating. He began talking to the oiler who was on the platform of this crane opposite the operator.

When last seen, the truck driver was leaning against the west side of the cab of the crane. No one actually witnessed the accident. Suppositions are that he was interested in looking at the transfer case back of the cab, being mechanically-minded. Or, that he may have stepped beyond the cab to look in the direction where his truck was parked and was struck by the swing of the crane and caught between the counterweight of the crane and the main frame of the truck.

—To page 127

Air Casualties

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Safety Leaders of 1954

Winners in National Safety Council's Industrial Contests

A NEW LOW frequency rate of 6.57 disabling injuries per million man-hours worked was reported for 1954 by 3,692 entrants in 15 industrial groups in which contests were held.

The combined frequency rate for winners of National Safety Council plaques was 0.93—approximately 14 per cent of the average rate for all contestants.

The companies listed below are those which will receive first-place plaques according to the rules of the contest in their own industry.

In the Chemical, Fertilizer, Petroleum, Printing and Publishing, Textile, Commercial Vehicle, Glass and Ceramics, and Transit contests, first place plaques are awarded only to the unit operating the largest number of man-hours in case several have perfect records.

In other contests, all companies or plants with perfect records receive duplicate first-place plaques.

In addition to the contests listed here, competitions are also conducted by the Metals Section and the Meat Packing, Tanning and Leather Products Section on a fiscal year basis, July 1 to June 30.

Complete lists of all winners, plus second and third place winners and companies receiving certificates of merit for perfect records, appear in the contest bulletins which are being sent to all participating companies and plants.

Each bulletin also contains a brief analysis of experience in the industry and a coded list permitting each non-winning company to identify its own record and compare it with others.

Following are the first-place plaque winners:

AERONAUTICAL INDUSTRIES

Complete Aircraft Mfg.
Douglas Aircraft Co., Santa Monica Div.

Aircraft Parts Mfg.
NACA, Lewis Flight Propulsion Laboratory.

CHEMICAL

DIVISION I

Group A
E. I. du Pont de Nemours & Co., Seaford Plant.

Group B
E. I. du Pont de Nemours & Co., Toledo Finishes Plant.

Group C
Linde Air Products Co., Div. Union Carbide and Carbon Corp., Speedway Laboratory.

DIVISION II

Group A
E. I. du Pont de Nemours & Co., Repauno Works.

Group B
The Buckeye Cotton Oil Co., Cellulose and Specialties Div.

Group C
Stauffer Chemical Co., Niagara Falls, N. Y.

DIVISION III

Group A
The Harshaw Chemical Co., Harvard Denison Plant.

Group B
Shell Chemical Corp., Martinez Plant.

Group C
The Firestone Plastics Co., Vinyl Resin Plant, Pottstown, Pa.

COMMERCIAL VEHICLE

LIMITED PRIVATE CARRIERS
Permanente Cement Co.

COMMON AND CONTRACT CARRIERS

Group A
F. J. Boutell Driveaway Co.

Group B
B. C. Motor Transportation, Ltd., Vancouver, B. C.

FERTILIZER

DIVISION I

Group A
Canadian Industries (1954) Limited, Chatham Works.

Group B
Davison Chemical Co., Div. W. R. Grace & Co., Gretna, La.

Group C
Canadian Industries (1954) Limited, Halifax Works.

DIVISION II

Group A
Davison Chemical Co., Div. W. R. Grace & Co., Nashville, Tenn.

Group B
Canadian Industries (1954) Limited, Beloeil Agricultural Chemical Works.

DIVISION III

Group A
Swift & Co., Plant Food Div., Calumet City, Ill.

Group B
Virginia-Carolina Chemical Corp., Selma, N. C.

DIVISION IV
American Cyanamid Co., Brewster, Fla.

FOOD

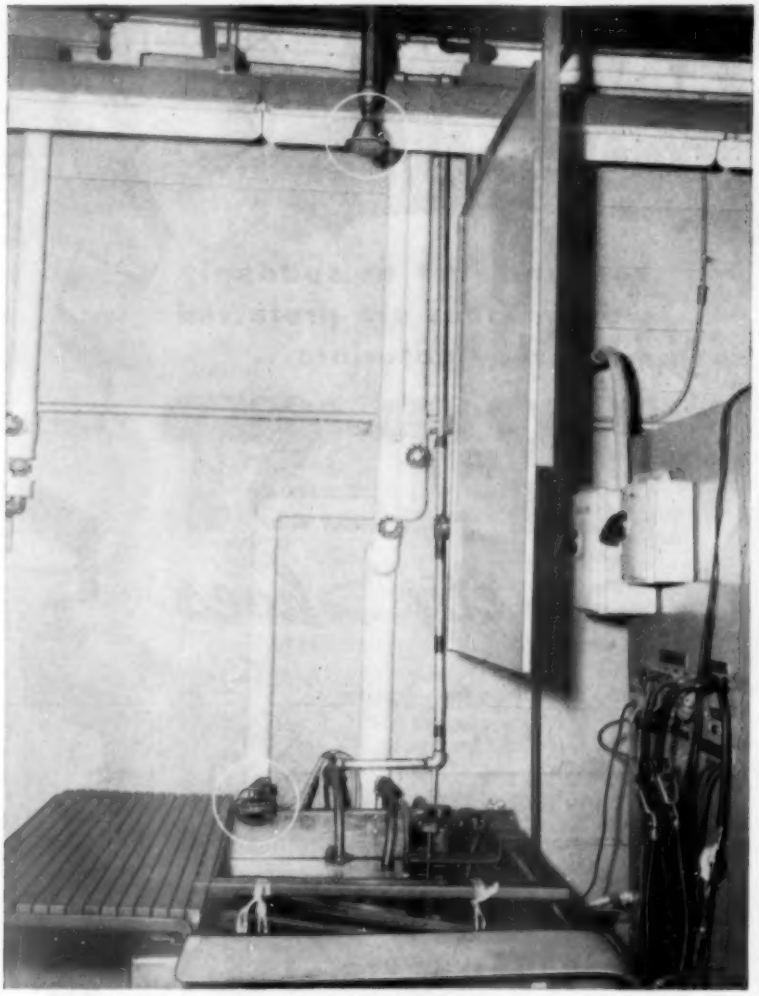
DIVISION I

Group A
Pillsbury Mills, Buffalo, N. Y.
—Hamilton, Ohio.

Group B
Spartan Grain and Mill Co., Spartanburg Mill.
General Foods Corp., Corn Mill Div., Kankakee, Ill.
International Milling Co., Salina, Kans.

Group C
Ralston Purina Co., Macon Branch.
—Circleville Branch.
—Woodstock (Ont.) Branch.
—Jackson Branch.
—Montreal Branch.
—Stockton Branch.
—Checkerboard Soybean Div., Decatur Branch.
—Oklahoma City Branch.
—Pocatello Branch.
—Wichita Branch.
—Tampa Branch.
—Lubbock Branch.
General Mills, Inc., Flour and Feed Mill, Ogden, Utah.
Spencer Kellogg & Sons, Inc., Chicago.
International Milling Co., New Prague, Minn.
Pillsbury Mills, Clinton, Ia., Soy Plant.
General Mills, Inc., Flour Mill, Great Falls, Mont.
International Milling Co., N. Kansas City, Mo.
Spartan Grain & Mill Co., Newberry Mill.

—*To page 70*



Everything looks quiet in this laboratory. But if flammable oil (below) should ignite, the FogFOAM head (above) would instantly release blanketing FogFOAM from the Rockwood SpotPROTECTION unit.

Hidden Danger Below-
Spot Protection Above

Squelch a flammable liquid fire *before* it can do damage.

With Rockwood SpotPROTECTION you have such a fire hazard "covered" as the picture shows. The heat actuated device below would sense any rapid rise in temperature at once. Then, instantly, the FogFOAM head above would discharge a blanket of Rockwood FogFOAM and quench the blaze. This is Rockwood SpotPROTECTION — a worthwhile money-saving adjunct to your regular fire-fighting equipment.

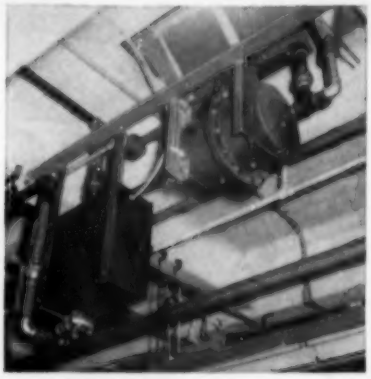
Where flammable liquid hazards exist, ordinary firefighting methods are often ineffective, and at times even dangerous. SpotPROTECTION snuffs out flaming vapors, *without agitating the surface of the liquid*, your best safety factor.

Put SpotPROTECTION to work for you. Send coupon for complete information.

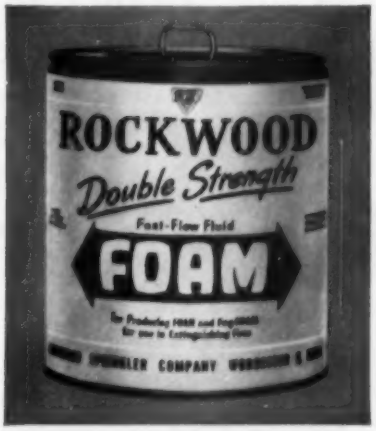
ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

How Rockwood Engineers Water to Cut Fire Losses



The circular tank is both for storage and balanced pressure proportioning of Rockwood FOAM liquid into water at a predetermined percentage rate. Model "K" Deluge Valve automatically controls flow of FOAM solution to FogFOAM heads.



Rockwood Double Strength FOAM clings to surfaces as an insulator — FOAM liquid flows freely at sub-zero temperatures. Excellent for extinguishing fires in gasoline, benzol and other highly volatile liquids as well as ordinary combustibles.

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H518 (upper left) — New brown embossed shrunken all-leather ventilator; Resist-Oil sole, rubber heel.

H506 (lower left) — Popular brown Nylon mesh and leather oxford; leather sole, rubber heel.

H508 (upper right) — Brown Ventilated all-leather U-Wing; leather sole, rubber heel.

H516 (lower right) — Brown woven all-leather ventilator; leather sole, rubber heel.

H508

H506

H516

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national
SAFETY NEWS
APRIL 1955

The Psychological Climate

THE HUMAN ELEMENT, we are told frequently, is to blame for anywhere from 70 to 90 per cent of all accidents on the job. Studies of accident cases, with their examples of stupidity and downright cussedness, give force to such estimates.

People continue to get hurt in shops where every prospect pleases and you couldn't find a hazard with a microscope. And, conversely, some good records have been made in shops that could be used for horrible examples.

All the same, literal acceptance of this 85 to 15 ratio hasn't helped safety. Too often it leads to complacency. Why spend money for expensive equipment that will prevent only 15 per cent of the accidents?

Education is more effective—and cheaper. And much of this "education" has been merely exhortation and generalities about carelessness, with a few attempts to scare the worker.

Urging workers to be careful in the midst of correctable defects is likely to get the response expressed in this jingle scrawled on a shed in a railroad yard:

Your cars are rotten, your track is worse;
And yet you holler "Safety first!"

That, incidentally, was quoted 40 years ago by a speaker at a National Safety Congress.

All this doesn't minimize by one little bit the need for research in human behavior. A recent addition to the subject is a report by John C. Larson, research associate at New York University's Center for Safety Education.

The study, *The Human Element and Accident Prevention,* points out that such factors as personality characteristics, adjustment to a new job, rejection by co-workers, low morale and lack of promotion are high among accident causes.

"Although a physical working environment contributes to accidents," says Mr. Larson, "the social and psychological climate does so to an even greater degree. Financial considerations are more tangible than prestige, but responsibilities and other factors of morale and job satisfaction tend to assume greater importance in the minds of workers."

The report contains sections on hiring procedures, orientation, training, morale, job satisfaction, and predicting accidents. It should convince anyone that dealing with the human element takes in far more than job training and admonitions. In fact, it's about as complicated as nuclear physics.

It should be remembered, too, that the psychological climate is influenced by such factors as good light and ventilation, clean washrooms and an orderly plant.

Likewise, we must realize that the human element is not made up entirely of the men on the job who provide the raw material for accidents. Management and supervision are human, too. And they also influence the psychological climate.

Leadership for Tomorrow's Safety

By DONALD C. POTTS

THE PAST HALF CENTURY has developed enough examples of human progress to permit us to draw back the curtains on the future sufficiently to release our imaginations.

And what do we see?

Let's focus our minds back to around 1900. Let's further suppose we are trying to forecast the commodities we would be having today, some fifty years later.

Who would have had imagination enough to anticipate the development of motor vehicles, airplanes, transcontinental and inter-continental telephones, air conditioning, washing machines, dishwashing machines, mechanical refrigerators, pop-up toasters, motion pictures with sound and color, radio, television, penicillin, streptomycin, and atomic energy?

And this is only part of the list.

Anyone who would have predicted these things in 1900 would have been classified as an impractical day dreamer.

Around 1900, ships on the Great Lakes possessed 3,000 tons of capacity; and a power plant of 2,000 horsepower was quite the thing. The fleet transported about 75,000,000 net tons of cargo a year in those days. Contrast this with ships of 7,000 horsepower and 20,000 tons of capacity on the Lakes in the past few years. And, lay this up alongside of the 216,500,000 net tons of cargo hauled last year.

In the light of this march of events, if I asked you to write a list of predictions of things your sons and grandsons will behold in the year 2000, what would you write down?

Perhaps it would help if we called upon the people who know about these things to tell us of some of the calculable future. In terms of dollars we know today, per capita income in this country is presently between $1800 and $2000. We have more than 160,000,000 people and their income amounts to about $300 billion dollars annually.

Statisticians estimate that we are increasing our per-capita income approximately 20 per cent every ten years and that the population is increasing about 15 per cent in a similar period.

On that basis, it is estimated that by 1970 we will have 200,000,000 people in this country, and a per capita income of about $2500 a year, with a national income of about $500 billion.

And, projected further, by the year 2000 there will be more than 300,000,000 of us with an income of about $4300 per capita—2½ times our present income—totaling a national income of 1⅓ trillion dollars. This is more than four times the business we are doing today.

Yes, we are moving at a fantastic pace but we don't really appreciate how fantastic it is. And, the tempo is increasing as each day goes by and as the minds of men are applied in thousands of laboratories and at drawing boards to bring forth the new of tomorrow.

Machines That Think

More horsepower and energy are constantly being put to work by the individual worker. Straining thighs and biceps and heaving chests are giving way to the slight motion of fingertips on a button. And, the miracle is that more goods are turned out with less time and effort than ever before.

I won't bore you with all the things you have read about the tremendous advancement in nuclear science and the extent of automation in industry but I do want to mention that only a few weeks ago I witnessed the operations of the Univac, a highly specialized Universal Automatic Computer. Just think, this machine can complete all conceivable computations, including the printing of checks covering a payroll of 15,000 persons, in six hours!

So, as you poise your pencil to write of the things that we will find quite commonplace in the year 2000, it is obvious that you must let your mind go

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DONALD C. POTTS is President, Pittsburgh Steamship Division, United States Steel Corp. This article has been condensed from an address before the Marine Section, National Safety Council, and the Propeller Club, Port of Chicago.

MECHANIZATION, electronics and nuclear developments will change job descriptions drastically in years to come. With greater specialization comes a more educated working force. This increased intelligence lends itself to modern leadership. To fail in furnishing skilled leadership to such a working force would be a drastic and costly mistake.

literally wild. Man will produce so much more above his ordinary needs that the luxuries of the rich today will be the necessities of the underprivileged tomorrow.

I am sure this transformation of living standards has already been dramatized most effectively for you in your everyday work.

I don't think there is a lake captain—and many of our salt water friends have had the same experience—who hasn't had his heart in his throat as he navigated the Detroit River, or similar bodies of water, wondering if he could escape grinding up a few outboard motor boats and cabin cruisers squatting in his path in the dark of the night.

And, if you think you have it bad now, let's take a look at what's going on. This matter of greater income and higher standard of living checks out something like this.

I called the Coast Guard the other day, out of curiosity, on this matter of smaller craft. I found that the Ninth Coast Guard District encompassing the Great Lakes has registered over 51,000 boats 16 to 65 feet in length. In addition, a few years ago they stopped keeping a record of those craft under 16 feet and at that time there were 90,000 of them in the area. National Coast Guard records show that in the last several years there were just under one-half million craft over 16 feet in length powered by outboard and inboard motors in Federally regulated waters.

A Boat in Every Garage

No wonder traveling the inland and inter-coastal waterways these days is a ship captain's nightmare. According to the National Association of Engine and Boat Manufacturers, $800,000,000 was spent on this type of craft in 1953 and the sales outlook points to a 25 per cent increase annually. It is estimated that already there are 23,000,000 Americans in boats on the lakes and rivers of the nation.

It seems to me that long before the year 2000 you are going to be an under-privileged citizen if you don't have a boat in the garage with your airplane and your automobile.

Individual jobs in industry will continue to move in the direction of higher specialization as new equipment, new methods, and new demands on our service become the order of the day.

Mechanization, electronics, and nuclear developments will dictate that job descriptions change drastically in the years to come. With greater specialization of jobs comes a more educated working force. This increased intelligence lends itself to modern leadership. To fail in furnishing skilled leadership to such a working force would be a drastic and costly mistake.

One of the important areas in this picture of a higher standard of living is the fringe benefits earned along with the regular take-home pay.

Recent surveys show that they amount to about 31 cents an hour on the average in industry generally. They cover hospitalization, life insurance, pensions, vacations with pay, compensation, and numerous other considerations.

Conserving Fringe Benefits

Every non-occupational accident results in an expense chargeable to the funds set aside for those various benefits. By the same token, the extent to which lost-time accidents can be avoided, and the general health of individuals improved, the greater is the amount of money left to devote to extending other benefits.

I cannot over-emphasize the part that a full blown safety program under dynamic leadership can contribute to the real benefits to be enjoyed as a result of the efficient expenditure of these fringe benefit funds.

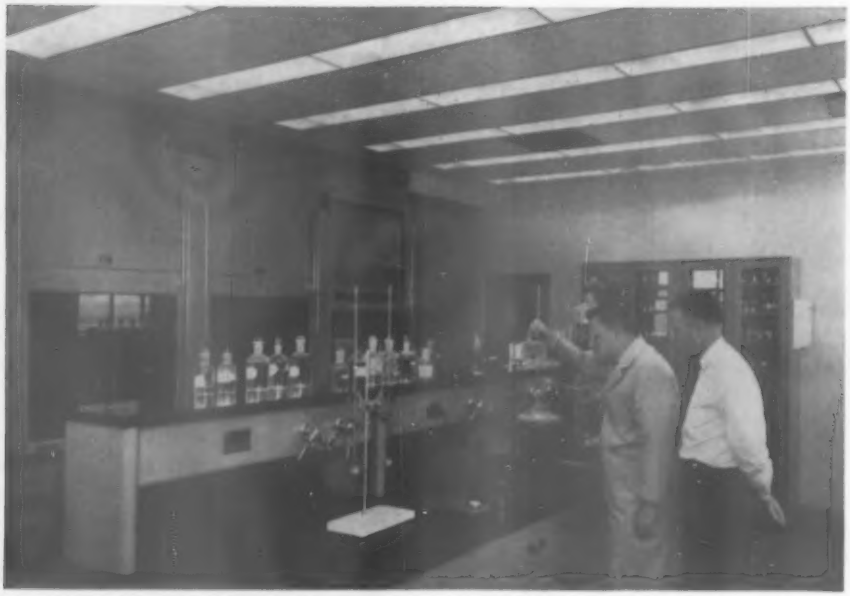
You have heard it said statistically in many ways, but I believe it is quite generally accepted that today we are four times safer at work than we are off the job. This suggests to me that as we head out into the great sea of the future we must assume a far broader objective in our safety program.

This increase in the tempo of living—the increase in the amount of time that we will devote to enjoying the various luxuries that our higher standard of living will afford—call for us to extend the safety program so that sometimes hence we can say that we will be as safe off the job as we are on it.

Like the old biblical expression that "Bread cast upon the waters shall return many fold," the projection of the safety campaign into the home, and the community in general, will result in added benefits in our operations.

To the extent that we indoctrinate the entire populace, we will acquire new employees with an ingrained sense of safety.

Let's overlook the fact that this, alone, can pay its way in efficient and profitable operation. Let's think of it more as the human thing to do—the grand contribution on the part of the safety forces of industry to the happiness and well being of mankind in general. *—To page 86*



The industrial hygiene laboratory has become a center of research for better working conditions through study of materials used and control of manufacturing processes. (Courtesy General Electric Co.)

The Expanding Field of Industrial Hygiene

By A. C. PABST

Twenty years ago industrial hygiene was a new science. Today the hygienist and the safety engineer are on the same team working for a safer environment

INDUSTRIAL HYGIENE is a field that is closely interwoven with industrial safety. In fact, it can be regarded as a medical engineering phase of safety.

Unfortunately, many people know little about industrial hygiene and the functions of the industrial hygienist. Industrial hygiene is a comparatively new science—practically unknown 20 years ago. Today there are only 800 industrial hygienists in the United States, and a large number of them are not in industry but working for the federal government or state departments.

Usually, the word "hygiene" recalls hygiene courses in school which dealt with personal habits, such as bathing, brushing teeth, cleaning finger nails, etc. People jump to the conclusion that a hygienist in industry must be interested in keeping employees clean. In my initial visit to many of our refineries, it seemed that the first stop in the tour was to visit the locker rooms and to inspect shower and lavatory facilities.

Industrial hygienists are interested in personal cleanliness so far as it is necessary to protect the employee's health. We are more interested in keeping his lungs free from poisonous dusts and gases, his bones free from lead, his liver free from chlorinated solvents, etc.

Hygiene is defined as *that branch of medical science that relates to the preservation of health.* Therefore, industrial hygiene may be defined as the science of prevention and control of occupational illness. It resolves itself into the problem of finding factors or conditions in work places that may cause or contribute to the illness or serious discomfort of employees, and of devising the methods and means of eliminating or controlling such conditions.

The industrial hygienist has

A. C. PABST is Industrial Hygienist, Socony-Vacuum Oil Company, Inc., New York. This article has been condensed from a paper presented at the Petroleum Section, 42nd National Safety Congress.

done much toward bringing medicine and safety engineering into close cooperation partly because his interest overlaps these two fields.

The typical industrial hygienist started out as a chemist or chemical engineer who became interested and studied toxicological effects of chemicals on man. Consequently, he has a good background of chemistry and engineering combined with some medical knowledge—a sort of one-third doctor, one-third engineer and one-third chemist. His objectives are the protection and improvement of the health and safety of workers from all manner of harmful exposures related to occupation.

From this you will note that industrial hygienists and safety engineers have pretty much the same objectives and are members of the same team. Actually, the functions of each are sometimes so inter-related it is not possible to draw clear lines of separation. Nor is it necessary to do so, for if a man's health is endangered by working conditions it is an important part of his safety picture. In many industries, safety and industrial hygiene are combined in the same department.

In the petroleum industry, however, industrial hygienists are usually attached to the medical department and work as closely as possible with the safety department. There is good reason why the petroleum industrial hygienists must lean heavily upon the safety department. In the petroleum industry the concept of industrial hygiene is relatively new and is considerably behind similar activities in the chemical and other industries, consequently, the number of petroleum industrial hygienists is exceedingly small.

On the other hand, safety departments are well established, well acquainted and close to the every day problems of the petroleum industry, and have considerably more coverage and manpower. To illustrate, the American Petroleum Institute's roster of safety and fire protection personnel lists some 1200 names, probably not all, in this occupation.

Contrasted to this, to the best of my knowledge, there are at present only 17 industrial hygienists working for petroleum companies—an industry ratio of approximately 70 safety men to one industrial hygienist. Most of the major oil companies now have at least one industrial hygienist and from 50 to 100 safety men, so you can see it is very necessary for us to work with and through our safety people.

Basically, the practice of industrial hygiene in the petroleum industry is the same as in any other industry and it can be boiled down to four general principles:

1. A knowledge of the toxicology of chemicals and materials.
2. A review of all chemicals or materials used and how handled and the tabulation of toxic or potentially hazardous substances.
3. The measurement of worker exposure to hazardous substances.
4. If required, the recommendation and installation of adequate control measures and the evaluation of the effectiveness of such corrective steps.

Toxicology of Chemicals

In regard to Item 1, the Toxicology of Chemicals, it is usually difficult to adequately define a hazardous material because practically anything can be safe or harmful depending upon how or where it is used. For example, air and water are not regarded as harmful, but both are quite deadly under certain conditions—air if injected into the blood stream and water if introduced into the lungs.

In the same manner, the use of carbon tetrachloride in a process having properly designed ventilation would not be hazardous, while the use of carbon tetrachloride for mopping floors would be quite dangerous. Most safety people are aware that carbon tetrachloride is a hazardous chemical because there has been con-

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Like people, chemicals are of many types and dispositions. Most are uncomplaining, law-abiding citizens who present no special problems. Some are unstable and unpredictable. Some are out-and-out neurotics, requiring a sharp and observant discipline. Others, harmless by themselves, may be influenced by bad company. Still others are troublemakers in solitary, but docile and helpful in tandem. Some are just plain bad actors.

—From a publication by Du Pont's Haskell Laboratory of Toxicology

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TABLE I—EFFECT OF ALCOHOL LEVEL IN BLOOD*

Ounces of Whiskey Consumed in 1 Hr. or less	*% Alcohol in Blood*	*Behavior*
¾	0.01	Normal
1	0.02	Feeling of warmth, pleasant social behavior.
2-3	0.05	Judgment blunted Boastful, impulsive Officially still sober
5-6	0.1	Fumbling, staggering gait, clumsiness, slurred speech
8	0.15	Officially drunk. Responses and motor coordination strongly affected.
10	0.2	Helpless, nausea
16	0.3	Stupor
24	0.4 - 0.5	Coma
30	0.6 - 0.7	Paralysis of the respiratory center—death.

**Pfizer Spectrum, JAMA, March 27, 1954*

At home, the handyman tackles many a project with no thought of eye protection. Driving nails isn't the most hazardous job, but it has caused eye injuries.

In the Industrial Steel Company garage, Robert Livingston wears goggles while checking batteries. Eye protection is required when working near acid.

Do It Yourself — But

Caustics, such as lime, are highly dangerous in the eyes. They get under lids and keep on burning tissue till removed. Eye protection should be worn when using mortar or plaster, as Antonio Correa demonstrates.

Wherever there is danger of acid or caustic burns, quick-acting emergency showers should be provided. William McCaughey shows how it works.

THE DO-IT-YOURSELF movement which has descended on thousands of homes has brought the hazards of the factory into the household, with few of the safeguards to be found in the well-operated plant.

Particularly vulnerable are the eyes and comparatively few householders have goggles or eye shields handy and wear them on their project.

Recently, *The Hammond Times*, of Hammond, Indiana, carried a spread in a Sunday supplement featuring eye protection on the job and at home. Through the courtesy of *The Times* the accompanying illustrations are reproduced.

The feature was inspired by Dr. Hedwig S. Kuhn, a practicing ophthalmologist in Hammond and chairman of the National Safety Council's Committee on Eye Conservation. Dr. Kuhn's wide industrial practice in the Calumet Region has provided many examples of eyes saved through protective equipment and others in which failure to use eye protection resulted in loss of an eye.

An increasing number of eye injuries in homes in the Calumet Region has been noted, as well as in many other sections of the country.

A few months ago a 15-year old boy, working on his bicycle, pounded it with a hammer. A piece of hard enamel flew into his eye. Being non-metallic and thus difficult to remove, the enamel chip caused the boy to lose an eye.

The housewife, too, can take a lesson from industrial eye protection practice. Some household detergents are quite irritating to the eyes. Industry keeps a supply of water handy wherever there is danger of chemical burns. Irrigation of the eye is the immediate remedy. The old method of neutralizing the chemical is obsolete.

As one eye doctor said:

"If every human being knew that the very first thing to do for any chemical in the eye is immediate and copious irrigation, there would be very few lost eyes

In the home garage, Jack Dubosz of Hammond (who poses as the handyman in this series), shows how most motorists risk eyes tinkering with cars.

Again, Jack Dubosz risks his eyesight by operating a gun type drill without goggles or face shield. Eye protection is urged whenever power tools are used.

Protect Those Eyes!

due to this cause. . . . Any kind of water will do—from a hose, in a pan or pail—or milk. *But no oil.*"

A local example was that of a Calumet Region housewife who was using lye to wash windows. Working on a pane over her head some of the liquid dripped into her eye.

Frantic with pain she ran around the house trying to decide what to do. She rushed over to a neighbors house. After a discussion the neighbor took her to a drugstore. The druggist took one look and sent her to a doctor.

The woman lost some vision and needed some repair work on the lower lid. If she had known about immediate irrigation with water, forcing the eyelids open, probably none of the vision would have been lost.

And one might wonder, too, why it was necessary to use such a violent cleaner as lye for window washing.

In some plants, the committee reported, workers are paired where there is danger of chemical burns, so that one can help the other in case of injury. Quick-acting showers or basins of water are kept handy for emergency use. A worker may turn a hose on his buddy or soak his head in a bucket of water.

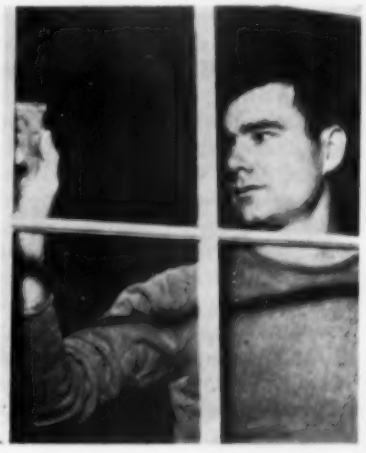
Acid or alkali in the eye get the same treatment—water. Caustic burns, caused by such material as lime in cement or plaster, are worst. The material cakes under the eyelid and is difficult to wash out. Unlike a liquid that is diluted by water, the caustic stays in the eye and continues to affect the tissues until removed.

Any red eye is a danger signal, the committee warns.

There is one recorded case in the Calumet Region where a housewife blamed a red eye on the soap she had been using. The eye continued to hurt so she went to a doctor. Examination showed that a tiny piece of wire from a soap pad had lodged in the eye and damaged the cornea.

Metal in the eye is bad enough, but glass splinters are much worse. They are difficult to remove and in many cases can't be removed without further damage to the eye.

Driving nails calls for eye protection in the pattern shop of Inland Steel Company where Henry Langer is at work.



This doesn't look hazardous but glass splinters are among the worst menaces to eyes. They are non-magnetic and extremely difficult to remove.

(Fiction)

Resentment sometimes starts constructive thinking, as it did in this accident investigation

Investigation Plus Irritation

By BILL ANDREWS

Thursday, April 7

Hard and cold the eyes were.

Hard and cold as the questions just asked . . . "What good is all this investigation bunk? Will it bring Joe back on the job any quicker?"

The eyes belonged to the questioner, and the question was asked on the loading dock still marked by the black skid marks, beside the column scarred by impact and stained with a red dye that was turning dark brown.

Bill Jensen asked the question. Bill had just helped free Joe Michael from where he was pinned. Bill, a ten-year employee, a top hand on the dock, had been the obvious person to talk to and get the story of the accident.

At first he had been cooperative. He told us what Joe had been doing, where he stood, what direction he started to move a heavy crate. Bill told us that the power truck had wheeled out from behind a row of cartons too fast, that the operator hit his brakes hard when he saw Joe, and had not been able to stop in time.

But as Harry and I went over the scene with camera, tape measure, and notebook, and then returned to cross question and get all the details straight, Bill began to scowl. Instead of full answers, we began to get noncommital grunts.

I was surprised, and I asked him what was the matter.

That was when he glared at us and shot out the hard, cold question—"What good is all this. . . .?"

Harry started to explain about accident report forms and statistics and analysis. Bill cut him off with a four-letter snarl.

Harry shrugged and walked away. I stood there a moment looking at Bill. Then I said, "All this investigation is some good, and if you'll listen, I'll prove it to you. But what is it that's griping you, Bill?"

"I'll tell you what's griping me, dammit," he said. "You and your bright boy come charging in here after Joe gets hurt. Okay, that's your job, I know that. But you go on and on talking about distances and speeds and directions and actions, just like a couple of cold-blooded engineers figuring out why a machine broke down.

"That's all Joe is to you, a piece of busted machinery. You're supposed to keep machinery from getting busted—human machines, that is. And since you flopped and let a piece get busted, you've got to come out quick and figure out your alibi.

"Doesn't it matter to you that Joe was a good guy and his wife and kids need his paycheck, and now he's got a mashed leg and won't work for Lord knows how long? That's blood on the post, man, not a bit of grease from a busted machine. That's a piece of Joe, and I'm damned if I can see why I have to sit around listening to you guys treat him like a bent fender on a truck."

I opened my mouth to argue back. But everything I was about to say began to look pretty stale and stuffed shirt, so I didn't say it.

Instead I said, "Where do you figure Joe is now?"

Bill looked blank, and muttered, "I suppose he's down at the hospital."

I looked at my watch. "At a guess," I said, "he's about through with emergency treatment. Maybe some doc's scrubbing up now for surgery to see if the leg can be salvaged. Bill, suppose it was you down there instead of Joe. What would you want? A bunch of doctors and nurses who held your hand, patted your head, and told you how sorry they were that you got hurt? Or an efficient surgical staff ready to take a cold-blooded look at the damage to your leg and to do the best repair job possible?"

Bill said, "I'll take the cold-blooded surgeon, all right. But you and your boy ain't fixing up Joe's leg. You're just snooping around looking for an out for yourselves. If you're trying to prevent accidents, why weren't you out here before hand stopping this one?"

I said, "You know why, Bill. Because there are 6,000 people working here and we can't be everywhere all the time. But Harry and I aren't looking for any alibis. We haven't got any. Whatever the investigation shows, the accident happened, and that proves we overlooked something. What we're trying to do is prevent the next one."

The four-letter word was again the answer, and I just took it. But I said, "Remember the last accident on the dock—the last bad one?" Bill nodded, said, "It was Louis, two years ago."

"Do you remember my being out here? I spent two full hours on that investigation. I spent another two hours trying to figure out an answer. I spent a lot of time the next week persuading people to redesign the barrel hoist. And you know and I know that nobody else is going to get a smashed foot the way Louis did."

Bill nodded. "Okay, I'll grant you that. But what's that got to do with your snooping today? Do you think your tape measure will tell you how to make a bunch of jerk cowboys on power trucks stop showing off and smashing good guys?"

I said, "I remember spending a good deal of time on the investigation of Louis' accident studying the lighting of the dock and the shape of the barrels and the training plan for barrel loaders."

Bill looked puzzled. "What did that have to do with the hoist?"

I said, "Not a blamed thing. But at that stage of the investigation, I didn't know what was the best corrective action to take. The light wasn't perfect—I had to double check and make sure it wasn't to blame. The check on the training plan was another blank—but I couldn't know that until I went over it carefully. The shape of barrels—that was a brainstorm, maybe—but the fact is that in Louis' case an old fashioned barrel with bulging sides would have missed his foot. Screwier brainstorms than that have prevented lots of accidents, believe me. But a double check showed that it was only a long-shot chance that a foot injury would be prevented in the future, for Louis was actually way out of normal position. So that was a blind alley line of thought.

"It was only after all those were eliminated that I started in on the hoist and came up with the right answer."

Bill asked, "Okay, then, what angles are you following now?"

I thought a minute, then lined out the main approaches. Harry, I knew, had been to Chicago to talk to National Safety Council boys in the traffic end to see if there was any reliable correlation between length of skid marks of plant vehicles and speeds. They couldn't give him too definite data, and he was working up some information of his own. As near as he could estimate, these marks were made by braking from eight miles an hour, a whale of a lot too fast for the situation on a busy dock.

I had the photos taken because I wanted to work on the possibility of relocating the carton storage to open up visibility for the truck operators on the main approach.

Then I showed Bill my data on the truck operator—age, length of service, marital status and so on. I sketched out for him the details of our study in progress on similar employees, searching for a correlation between personal factors and frequency of rule violations and property damage—since we don't have enough actual injury cases to be a reliable index.

"But," I said, "I have a hunch all these are blind alleys. I'm

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CARRY-OVER

AFTER A MEETING, Sam asked me how I could expect him to be enthusiastic about a subject as dull as safety with so many other things on the job taking his interest.

I said, "Sam, the other day when I was at your house you were a real tiger on the subject. 'Sally, don't climb up there, you will fall and hurt yourself—Billie, don't run with the pencil in your mouth—look both ways before crossing the street—hold onto the handrail going down the stairs—don't leave the toys lying around to trip over—let me show you how to do that'—etc., etc.!"

Man, you're real enthusiastic about safety and don't even know it!

However, you have two problems, as too many people have. (1) You think adults don't require the direction and instruction that kids require. (2) You feel that you should be more interested in the welfare of those at home than in those at work.

You're way off base in either league!

For example, putting clothes on is a difficult task for a three-year-old, until he's coached, helped and instructed for some time. However, it's a simple task for adults.

But, you introduce an adult to a new and different job, or situation, and you have relatively the same situation as with the three-year-old. He has to be looked after.

Any one of us may be a real hot shot on a certain subject, but relative to something else be merely a child.

As to the interest problem, all of us should have the interest of fellow workers at heart. We can't be very successful working alone. It's by everyone working efficiently together that we achieve the things we wish for our families. Safety is essential to efficiency.

So, Sam, how about carrying over your enthusiasm for the kids' safety to those on the job with you.

ROBERT D. GIDEL, *Senior Consulting Engineer, Industrial Department, National Safety Council*

Floor, Feet and Wheels

All three are closely associated in piling up one of industry's biggest safety and maintenance problems

DAY IN and day out, factory floors take a terrific amount of punishment. Continued foot and wheel traffic, heavy loads, corrosive materials and water are the worst floor destroyers. But plain, everyday dirt can cause deterioration, too.

And slippery conditions underfoot can make walking and handling materials more difficult and hazardous.

Good floor maintenance involves three essentials: (1) Treat floors right; (2) Inspect and repair; (3) Clean them regularly and correctly.

Industrial operations subject floors to rough treatment at best, but some of the abuse can be avoided or minimized.

Impact loads. Workers aren't supposed to drop heavy objects on floors but it happens regularly. When repeated, these blows will crack concrete and splinter wood block. Rubber mats or replaceable wood block inserts where heavy materials are loaded and unloaded will absorb the shock.

Concentrated point loads. Steel-wheeled trucks are notorious floor wreckers. The smaller the wheel the greater the load carried by each square inch of bearing surface. The result is rutting, cracking or dusting. Heavy duty concrete, properly installed, is most resistant.

Wheels of rubber—solid or pneumatic—or plastic will spread the load over a larger area of floor surface and are more resilient.

Destructive materials. Oils, acids, greases, and organic solvents can ruin most floors, even with only occasional exposure. Drain pans and splash guards around machinery will help to confine spillage. If it cannot be easily controlled, a coating of acid-resisting mastic can be applied.

Inspection and Repair

Floors seldom go to pieces suddenly. Usually the deterioration has been going on for some time and careful inspection would have detected it. When supervisors and foremen realize that early repairs

Floor machines have taken over the heavier cleaning jobs but the old fashioned mop is still useful at times. The detergent should be free from strong alkalis that etch the floor and should not leave a slippery surface.

This power sweeper was originally designed to sweep up leaves but it proved equally suited to cleaning up litter left by airport patrons. Sweepers also have many uses in plant buildings and yards (Atwater Strong Co.)

of chips and cracks will reduce down time, they will be looking for them.

Operators of trucks and tractors should be encouraged to report floor defects.

And, of course, organized periodic inspection will catch the small defects before major repairs are needed.

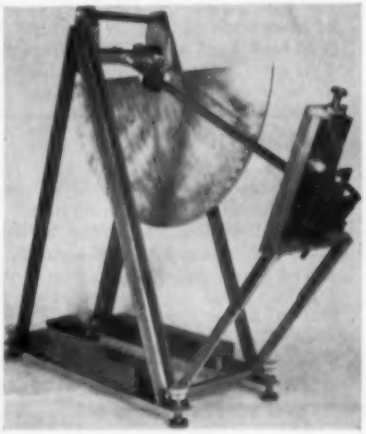
Clean floors regularly. Floor cleaning has suffered because of the widespread notion that it required only a mop, a broom, a bar of soap, a bucket of water and an employee who couldn't handle any other job. Pitted or dusting concrete, buckling wood floors and mutilated floor coverings have resulted from this kind of cleaning.

Type of floor, type of soil to be removed, cleaning materials, equipment and methods should all be considered in planning the maintenance program.

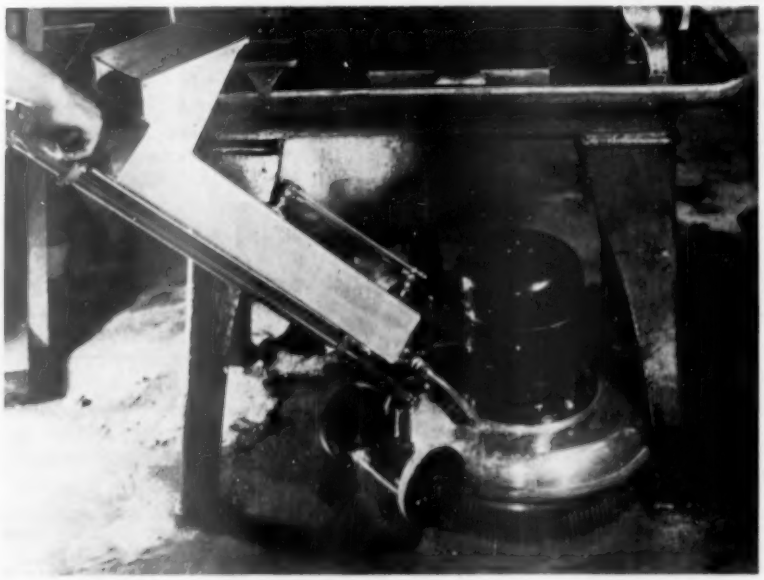
Call on the manufacturers. They have the service men who can give helpful advice on maintenance. Try out several products. When you find products that are satisfactory, keep a record of them as a guide for maintenance supervisors and for purchasing. But don't set up a closed mind toward new methods and materials. Too many types of cleaning materials are not necessary.

Wood block floors kept clean and in good repair will give long service under heavy traffic. Aisle lines kept painted aid good housekeeping.

A regular cleaning schedule pays off. Greasy, slippery floors can cut down handling efficiency in addition to causing falls. And crusts of dirt impose extra strains on even a heavy-duty floor when subjected to heavy trucking. When floors are unprotected and uncleaned, the eventual major clean-up can be more expensive than regular systematic maintenance.



Slipperiness tester developed by the National Bureau of Standards. It makes tests of surfaces with various coatings under actual use conditions.



Many types of floor machines are available for heavy duty cleaning jobs. This one gets under an automatic screw machine. Some types combine the operations of scrubbing and picking up of water (Hild Floor Machine Co.)

MAINTENANCE FOR VARIOUS TYPES OF FLOORING

(See table on next page)

Concrete

Dusting, one of the more common troubles, can be controlled by use of liquid hardeners. The hardener is flowed on over the concrete and penetrates, filling surface voids and leaving a smooth dense surface.

Three coats are desirable, with overnight drying between coats.

Patching. Regardless of claims made for some materials, feather edges should be avoided. Feather

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FLOOR MAINTENANCE HINTS

GENERAL

1. Adopt a regular cleaning and inspection schedule. Neglected floors increase the cost of cleaning and repairs.
2. Check methods and equipment. Would mechanical equipment do a faster and more thorough job and cut costs?
3. Don't flood floors—except concrete or other impervious material with a drain. It's bad for wood block, hardwood plank and magnesite and isn't necessary for other types. In general, use as little water as possible.
4. Remove oil and grease promptly. Commercial absorbents are more efficient than saw dust, are less bulky and avoid fire hazards.
5. Consult the manufacturers of floor maintenance specialties. There are products and techniques for every industrial need.

TO KEEP CLEAN

CONCRETE

1. Avoid ordinary soaps on unpainted or untreated floors. They may form a film that is slippery and be injurious to the floor. Strong alkaline cleaners that form crystals when they dry may erode concrete.
2. Rinse floor completely to remove cleaners that might penetrate pores and cause injurious chemical reactions.
3. Before washing, wet down the floor with clear water. This reduces absorption of alkaline cleaners. It isn't necessary to flood the floor.

WOOD BLOCK

1. Keep water off. If wet cleaning is used to remove loose dirt, pick up water promptly to prevent swelling of blocks.
2. Scrape hard grease and dirt accumulations regularly. This can be done with a wire brush or scraper, manually or mechanically. Oil absorbents often help.

HARDWOOD

1. Keep water off. It can cause dry rot, warping and splintering. If wet mopping or scrubbing are used, the floor should be dried promptly.
2. A well-sealed, waxed and buffed surface protects the floor and makes cleaning easier.
3. For badly soiled floors, wipe area with a mop wrung out in a good detergent solution; then rinse with clear water. Wipe dry immediately. It may be waxed if desired.

RESILIENT FLOORING MATERIALS—*Asphalt, rubber and vinyl tile and linoleum*

1. Sweep; wash as required.
2. Avoid flooding with water. If small areas are cleaned at a time, sections don't stay wet long.
3. Don't use gasoline, naptha or turpentine to remove spots from rubber or asphalt. Use cleaners recommended by the manufacturer and buff with steel wool.
4. Use mild cleaners or soaps. Strong alkaline cleaners take the life out of many flooring materials.
5. Use solvent waxes only on linoleum and vinyl. Water emulsion wax can be used on any type.
6. Keep floors protected with thin coats of wax. Vinyl tile doesn't need waxing but it helps appearance and gives protection.

MASTIC

1. Cold mastic floors should not be exposed to excessive water. Clean small areas at a time and rinse promptly. Use cleaners suggested by manufacturer.
2. Hot acid-resisting mastic should be scrubbed with hot water and cleaner. Dry promptly.

QUARRY TILE & BRICK

1. Warm water and any good detergent may be used. Rinse and dry promptly.
2. Keep floor as dry as possible to avoid slipping hazards.

TO AVOID MAJOR REPAIRS

1. Watch for dusting. It shows that the floor needs sealing or surface hardening. Areas subject to wear are adjacent to expansion joints and at corners of trucking aisles.
2. Reseal chipped areas on sealed concrete.
3. Watch for cracks. An expert can often tell how to correct the cause as well as fix the cracks.
4. If routine methods are not removing all soil, check materials and methods. Soil increases wear.

1. Watch for loose blocks and reset promptly. Loose block permits dirt and moisture to penetrate bond and loosen adjacent blocks.
2. Inspect for uneven wear and swelling or shrinking. Replace defective blocks promptly.
3. Re-seal surface every 1 to 2 years.

1. Rough spots indicate uneven wear. Protective wax coating is needed. When finish gets dull, clean and rewax.
2. Check to make sure cleaning is removing all soil before it becomes ground into the surface.
3. Warping or raised grain may indicate improper sealing, cleaning with too much water, or too much scrubbing. Sanding, sealing and waxing may be necessary.

1. Loosen tiles or unusual surface wear are things to watch for. Check maintenance methods.
2. If floor becomes unusually soiled it should be mopped or machine-scrubbed. Keep dirt from being ground into the tiles.
3. Use water sparingly.
4. Dull spots indicate uneven wear. Rewax as soon as finish wears off.
5. Protect against denting by proper casters or gliders.

1. Fill ruts and cracks with mastic patching compound to prevent seepage of water to subfloor.
2. Don't overload floor. Heavy static loads and small-wheeled trucks can cause serious damage.

1. Inspect joints regularly. Point up tile to prevent water penetrating into joints.

Got a Problem?

Who hasn't? If it's outside the experience of your staff, perhaps an outside consultant can provide the answer

By PAUL W. BEEDLE

ACCIDENT and health hazards cost money—lots of it. So much, in fact, that in some industrial plants the money that can be saved by an organized effort for the elimination of these expensive indulgences is easily the most profitable part of a cost reduction program. Any program which achieves conspicuous success must, of course, be adequate and practical, thoroughly integrated into the daily work routines of all who can contribute to the program's success, and must solve definitely and clearly those heretofore unanswered bugaboo problems which have made ineffective the previous efforts to cut accident costs.

The professional consultant, specializing in this very complex aspect of aiding management executives, often finds that his greatest contribution is in the bugaboo area.

A case in point may be helpful—a plant in which most hazards to health and limb were of a mechanical nature had one very severe hazard to health—the fumes evolved in one finishing operation. The chemical used was highly toxic and destructive. The process had been in use for some 15 years, and in the meantime all the people interested in improving the situation repeatedly reported the hazardous condition, and the safety inspector, the plant engineer, the safety director, and the chief chemist of the plant, individually and collectively had been able to do but very little to solve the problem.

Some of them even had the feeling that, after so many futile efforts and so much time had lapsed, "it was just one of those things that can't be changed." In fact, the chief chemist was about to launch again a research project to find a substitute chemical, in spite of the failure of several previous attempts.

Management, reluctant to accept the idea that the process had to be so dangerous, arranged for study of the problem by a qualified outsider. He took the problem in stride and showed the plant people how, with an expenditure of less than $500, the concentration of fumes could be reduced from 600 per cent above the allowable concentration and kept below 50 per cent of that limit. Success in this problem led to the next long-unsolved problem until, in a matter of months, the accident and health losses had been cut in half.

The consultant often is called upon to devise ways and means to awaken and to keep alive an active interest in cutting sickness and accident costs—from the very top to the newest worker—some means which will supplant the old time-worn "Don't do that; if you get caught, the penalty is a three-day lay-off."

Caught in the Middle

Sometimes he finds himself in the middle between the plant Safety Department and the production people who have "to get the work out." While it is a natural human situation, it still is a block to achieving the savings inherent in avoiding loss from accidents or health cases. Many times such cases are charged with the high potential static of long unsolved problems, especially when the production people are really sincere in their desire to protect their workers but only to get from the safety people "Well, *how* you do it is up to you; we've done our duty when we've called your attention to the hazards."

So the professional, knowing how things get that way, helps to straighten them out by getting down to fundamentals, then solving the human problems between those involved and the technical problems in such a way that the work can be gotten out on schedule without hurting anybody. Sounds easy, but it really is anything but—especially if the human relationship part has been allowed to grow to serious proportions as these things often do.

Preventative Maintenance

One very effective tool, of course, is the development on the part of everyone of a more adequate understanding of the economics involved. The economics approach is almost always successful, because it gets completely away from personalities.

While comparisons are odorous or odious, a good case in point might be useful right here. In a plant with several hundred punch presses, the superintendent of maintenance was opposed to preventive maintenance. In fact, he often said, "If it's still running, let it run; we'll fix it when it breaks down; no use going around looking for work." Since many of the presses did specialized operations, the production men really had to sweat every time a press went down for repairs, which, because of competition from many other presses down for repairs, often took 60 to 90 days, sometimes even longer. The safety director, fearful of the almost continual production-maintenance feud, worked diligently, but with

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PAUL W. BEEDLE is Engineer with Wolf Management Engineering Company, Chicago.

Industry's Pack Mules

By H. WILLIAM OVERMAN

Mechanical equipment hasn't pushed the hand truck out of the picture. It's still a hard and useful worker

NO one really knows when the industrial floor truck came into being. Its design is based fundamentally on the principal of the wheel and/or the lever. These two primary instruments through the process of evolution have become various types of industrial floor trucks as we know them today.

When primitive man first discovered that it was easier to roll a log than carry it, or to pry an object off the ground with a long sapling instead of trying to lift it with brute strength, that day man began the slow conquest of power and its functions.

Through centuries of recorded Egyptian, Greek and Roman history, the development of these principles can be considered as the birth of the almost universally used industrial floor truck of today.

In more modern times, the Puritans, the first to introduce the wheel to America, used two-wheel push carts and three-wheel wheelbarrows, usually fabricated by the village blacksmith.

Today's almost universal use of refined products, that developed, under many and varied conditions, handling thousands of different items, has brought about a safety problem that affects our overall operations to an alarming degree.

Statistics compiled by the National Safety Council and a number of insurance companies have revealed that one of every three industrial accidents in the United States is caused by poor material-handling. Materials mishandling is the number one crippler in industry.

The 1954 edition of *Accident Facts* states that an estimated 45,000,000 man-days were lost in 1953 by injured workers and 205,000,000 more days lost by other workers. For the records, 22 per cent of all total disabling injuries are charged to materials-handling.

Let us now consider those points that cause these accidents. Here are some suggestions for reducing this tremendous loss to industry and needless suffering to injured workers.

Four-wheel hand trucks should be pushed, rather than pulled. The load should not be piled high enough to interfere with the operator's view.

H. WILLIAM OVERMAN is Manager, Material-Handling Division, The American Pulley Company, Philadelphia. This article has been condensed from a paper presented at the Material-Handling Session, 42nd National Safety Congress.

Hand truck of light-weight aluminum, sand-cast in one solid piece. Wheels have individual bearings with no axle, which gives greater clearance for truck. Molded rubber tires prevent side-slippage. (Northrop Aircraft Inc.)

First, we will outline the important points. The listing does not in any way attempt to list the points in order of importance.

Where safety is concerned, the entire group should be treated equally.

1. Proper truck for the job.
2. Correct use of truck.
3. Overloading.
4. Correct load positioning.
5. Conditions under which truck is operated.
6. Safety color.
7. Safety brakes.
8. Safety regulations.
9. Maintenance.
10. Training.

I. How To Select A Truck

Following is a list of points to consider in selecting a floor truck. It is not absolute and specific because individual job requirements vary widely, and the relative importance of truck design features varies with them. Hence, the following is generalized.

The major factors in selecting a floor truck are:

1. Load.
2. Floor.
3. Wheel equipment.
4. Overall design.
5. Condition of service.
6. Maintenance.
7. Maker's reputation.

1. Load. The factors to be evaluated here are: bulk, weight, susceptibility to damage, and the manner in which the load is applied. If cargo is to be dropped on the truck with little regard for breakage, it is advisable to choose steel construction. Also allow for overloads, operator abuse, and other extreme service conditions. Pick the lightest, fastest truck that will do your job with due regard for a safety factor for extreme service. Pay specific attention to manufacturer's load rating—don't buy a truck for 500 lbs. and then shift it to a department where loads are 2000 lbs.

2. Floor. The truck wears the floor and the floor wears the truck. Of the two, the truck is easier and cheaper to replace. If your floors are rough and rutted, have armor-plated runways and projecting door sills or rail crossovers. A large diameter wheel gives easier mobility. If the floor is littered with steel chips or other material damaging to rubber tires, you may need semi-steel wheels; although they tend to wear floors more quickly than other types. Over good concrete floors, wood, linoleum, mastic, asphalt tile, or ceramic tile floors, rubber tired wheels are decidedly preferable. Rough floors transmit shock to wheel bearings, and require heavier truck construction.

3. Wheel Equipment. Plain bearing wheels have lower first cost but require more effort or power, and wear loose and chatter. Ball type wheel bearings are best for light to heavy duty, and straight or tapered roller bearings are best for extreme heavy duty service. The biggest wheel you can use will give the greatest ease of operation, best load protection and longest service. For lowest cost, greater load capacity and longer service life, select semi-steel wheels. For quieter operation, less worker fatigue, best load protection, and longest truck service life, choose a rubber-tired wheel. A new tire, or a new wheel

—*To page 54*

Magnesium truck designed for handling kegs, drums and barrels as well as case goods and other flat-sided loads. Lightweight frame and pneumatic tires cut down effort in handling. Truck is available with choice of wheel and tire sizes and other accessories. (Magnesium Co. of America)

Rear view of the Sperry detector car, ally of the railroads in the prevention of derailments. Electronic signals record condition of rails on paper tape.

Electronics and Ultrasonics

. . . Modern aids to railroad safety

CONSTANTLY and without fanfare, Sperry detector cars are moving along the nation's 230,000 miles of track, probing for defects. They mark for replacement by the closely following rail gangs, all rails which are found faulty.

To date, they have located approximately 1,500,000 dangerous rails which have been removed from service. Extensive railbreaking programs have proved the delicate eye of the detector car almost infallible. More than $400,000,000 in damage prevented is estimated to have been saved through this method of inspection.

In the decade 1943-1952, railroads operated more than 563,000,000,000 passenger miles with 850 passenger fatalities. One reason for this low accident rate is the long term, specialized and continuous safety program which originated more than 40 years ago.

This program comprises two major phases — safe operating practices combined with constant safety education, and improved maintenance combined with inspection of equipment and facilities. Within this latter category is one of the most unusual and interesting of modern safety techniques, electronic rail inspection.

Electronic rail inspection has become practical and economic as the result of a research program initiated by the famous American inventor, Dr. Elmer Sperry. He undertook the invention and development of a "rail detector car" at the behest of the American Railway Association (now Association of American Railroads), whose member railroads were then suffering considerable losses

from defective-rail caused accidents.

Concentrated and advanced research into defect detection is continuing in laboratories of Sperry Rail Service, in Danbury, Conn. Objectives of the Sperry program are those Dr. Sperry originally set forth, "to originate and improve better equipment for better rail safety."

Sperry's facilities include what Ripley's "Believe-it-or-not" calls the "World's worst railroad." A half-mile of track, it incorporates every known rail defect type. On this road, all equipment is tested prior to installation on modern Sperry Detector Cars.

Laboratory on Wheels

Sperry's rail research program represents planned and scientific discovery. No outside or prior experience and information is available. Cost of a comprehensive rail research program is such that no single railroad could afford financing it. The benefits of the program, however, are shared by those roads using Sperry detector cars. Information developed in the course of this research is made available to the client railroads.

The fleet of 17 Sperry detector cars, called "laboratories-on-wheels," is constantly in service, helping railroads to eliminate costly and dangerous rail defects. The defects are invisible, internal discontinuities within the metal of the rails. At inception they are minute and undetectable. Constant pounding of today's heavy, fast trains, particularly freights, expedites their growth. If undiscovered they may cause rail failure or derailments. Their practical detection requires a testing method which has high efficiency in all weather, reasonable speed, and maximum sensitivity.

Old-fashioned methods of visual inspection scarcely meet today's need for modern efficiency. They are slow, depend upon fallable human judgement, and rely upon assumptions that can lead to wasteful replacement of sound rails and costly neglect of those which are faulty.

Valued at around $200,000 apiece, Sperry detector cars are self-propelled. They are operated by a crew of trained technicians who, with their chief operator and steward, live aboard. The men occupy comfortable living quarters between the forward gasoline engine which drives the car, and the aft engine which powers a battery of special electric generators. These generators induce electric current into the rails being tested.

Inside the operator's cab at the car's rear, recording instruments mark parallel lines on a paper tape which advances with the car's progress over the track. Normally the lines are straight, but should a defect enter the electric field, recorder pins vibrate to form "pips" which warn the operator of a defect's presence.

Types of defects encountered by the cars range from the common, transverse defects to horizontal and vertical split heads. All defects are dangerous, however, regardless of how frequently they are found, since they weaken the rail's strength and may grow unpredictably. Engine burn fractures, which appear as slight indentations in rail surface, have not decreased with dieselization.

Supplementing the work of the large detector cars are the smaller Sperry ultrasonic cars. These midgets inspect joint areas of rail. They comprise an ultrasonic reflectoscope, gasoline generating set, operator's seat and controls, all mounted on a motor car. There are also accessories such as hood and side curtains over the 'scope and fuel and oil tanks.

Ultrasonic Tests

These ultrasonic cars use "silent sound," vibration frequencies ranging from ½ to 10 million cycles per second, to scan switches, frogs, rail ends and platform-covered rails for defects. Visual inspections of these areas would require their disassembly—an extremely expensive procedure.

Available on a lease basis, both types of Sperry cars operate on a remarkably low cost-per-mile basis. The many railroads using them are virtually assured freedom from rail defects for reasonable periods after each operation. Determination of what constitutes "reasonable" depends upon many factors such as ton-miles carried, and weather conditions.

Constant watchfulness resulting from carefully planned rail-testing programs can help the railroads to maintain—perhaps even improve—the present high safety standards, in spite of traffic increases.

Strange or doubtful indications are investigated by hand-testing suspected area.

Gasoline-powered trucks operate in the confined space of a crushed grain storage room without workers suffering from exhaust fumes. This is made possible by equipping trucks with catalytic exhausts.

Sweetening the Fork Truck's Breath

Noxious gases exhaled by internal combustion engines have limited their use indoors. Catalytic exhausts have overcome this hazard

UNTIL a few years ago companies operating gasoline-powered equipment inside factories, mines or warehouses had to consider the expense of installing ventilating systems to protect the health and morale of employees.

Even where ventilation was adequate, the very presence of an exhaust-producing engine aroused fears in the minds of employees. Gasoline-powered equipment, despite its economy, versatility and other advantages, had two strikes against it for indoor operation.

The small box-like device which changed all this is known as the OCM catalytic exhaust. By oxidizing the carbon monoxide, hydrocarbons and odor-producing elements in the exhaust, it removes the danger. Developed by Oxy-Catalyst, Inc., Wayne, Pa., it replaces the regular acoustical muffler on gasoline engines.

The catalytic exhaust is applicable to virtually all gasoline engines using white (unleaded) gasoline and to LPG engines. White gas is necessary since lead in automotive fuel will poison the catalyst.

Since its introduction in 1950, the OCM catalytic exhaust has solved exhaust fume problems in scores of industries on a growing variety of equipment. More recently another type, known as the Dieseler, has been introduced and proved successful in removing fumes and odors from 4-cycle Diesel engines.

Inventor of the catalytic exhaust purifiers is imaginative French-born Eugene J. Houdry

whose catalytic cracking process revolutionized gasoline refining in the mid-1930's. One of the world's foremost experts in catalytic reactions, he has also perfected a catalyst for ridding plant stacks of atmospheric pollutants. Known as the Oxycat, the stack purifier has won international acclaim.

When Houdry introduced the catalytic exhaust his primary aim was safe indoor operation of gasoline-powered fork lift trucks. More than 3000 fork lift trucks are now equipped with OCM units, and this type of equipment still constitutes the largest field for catalytic exhausts.

Exhaust fumes are particularly serious in the food industry, where the contaminants can also harm the flavor of foodstuffs. The danger is made more acute by the fact that a large volume of air circulation is not practical in cold storage rooms.

An early customer was Land o' Lakes Creameries, Inc., Minneapolis. The company attempted to operate gasoline - powered trucks in its main storage area but found that it could not use even one truck continuously because exhaust fumes made the area unsafe for the operator.

About to give up gasoline-powerd truck operation in this area, Land o' Lakes equipped one of its trucks with a catalytic exhaust. This muffler oxidizes the carbon monoxide and hydrocarbon vapors, exhausting a nontoxic effluent to the atmosphere.

The practice of equipping fork lift trucks with catalytic exhaust purifiers has spread throughout industry, and plants operating protected equipment are now represented in almost every category, including breweries, bottlers, chemical processors, petroleum refiners, metal producers and fabricators, mining operations, construction firms, shipbuilders, wood working plants, warehouses, textile mills and paper products plants.

The catalytic exhaust has even invaded television. WCAU-TV, Philadelphia, Pa., introduced an OCM-equipped lift truck on its "Big Top" show to raise one of its television cameras for high camera angles. Since many of the performers on the show depend on split-second timing in their acts, they could not tolerate even small quantities of monoxide in the working atmosphere.

Parallel with the spread of catalytic exhausts to many industries is its application to various types of equipment in addition to fork lift trucks. These include stationary engines, tow trucks, dump trucks, power sweepers, portable welders, and construction equipment.

United States Steel Corp., for example, has installed OCM units on a Gradall and two Payloader tractor-shovels for use in cleaning iron ore from ships docking at its Fairless Works.

As proof of the effectiveness of the catalytic exhausts, two Payloaders have operated continuously as long as five hours in one hold without ill effects to the operators.

Application of catalytic exhausts to gasoline-powered floor sweepers has given plant engineers highly efficient means to keep floors clean, while preventing the hazard of exhaust fumes.

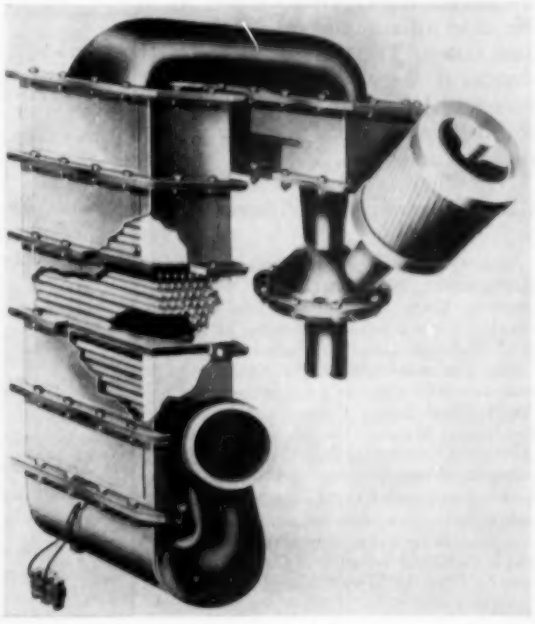
At the Lansdale Tube Company, Lansdale, Pa., a Parker Turbo-Sweep, equipped with an OCM unit, replaced hand brooms and mops. With make-up air and roof exhausts, Lansdale Tube has good ventilation in its 300,000 square foot plant. Nevertheless, the plant engineer specified a power sweeper equipped with a catalytic exhaust to make certain that there would be no trouble with exhaust fumes. No complaints have been reported.

Operation Underground

The success of catalytic exhausts—including the new Diesel-

—*To page 111*

Cutaway view of catalytic exhaust. Porcelain rods inside unit are coated with a catalytic agent which oxidizes carbon monoxide and other noxious gases to carbon dioxide and water. As engine exhaust enters unit, it draws air (to support combustion) through the circular air filter at right.



Catalytic exhaust on Payloader tractor shovel used to scoop up ore in holds of ships where ventilation would be inadequate for use of gasoline-powered equipment.

What Are the True Costs of Accidents?

By ROLLIN H. SIMONDS

Seekers after the facts about accident costs have come up with some widely varying figures based on different exposures. Comments on the subject are invited.—The Editors

IF you will think back to the time when you were reading Mark Twain's books, *Tom Sawyer* and *Huckleberry Finn*, you may recall that Tom did a good deal of treasure hunting. Mark Twain wrote that Tom's idea of buried treasure was either: a chest full of vague, ungraspable gold coins and jewels, or, a handful of real dimes.

It has been my observation that the men who are making decisions in business and industry—presidents, general managers, works managers, directors of production, of industrial relations, or on the finance side, the controllers, the chief cost accountants—those men are pretty hard headed when it comes to information on which to base action. They will go to great lengths if there are enough real dimes to be saved, but they do not base action on unsubstantiated, vague claims.

Now that is as it should be. Many of you, as safety directors, are interested in getting company support for your activities, but if the company is not operated at a profit, or if it does not at least cover costs with a hope of profit, there probably won't be any safety department, or even any company.

Perhaps the title of this article should have been *real* costs instead of *true costs*. This is not a senate inquiry where the talk is all labeled truth and lies. What I propose to do is give safety specialists a few suggestions so they can give management the kind of cost figures they will take seriously and to suggest something of what those figures will be like.

As far as the employer is concerned, there are two basic kinds of costs involved in occupational accidents. One is the cost of insurance. The other is the uninsured costs or losses.

The insurance cost is easy—easy to learn, that is. It is substantial, in more ways than one. The uninsured cost, on the other hand, has not generally been adequately handled.

William Connolly wrote in the *Monthly Labor Review* not too long ago, "It is generally accepted that the indirect or 'hidden' costs of injuries . . . amount to three or four times the direct cost of compensation and medical benefits . . ."

Well—generally accepted by whom? Not by plant managers, not by cost accountants. We in the safety field have seen it referred to so frequently that we

TABLE I

Uninsured costs of 49 lost-time cases in metal-working manufacturing

Cost Element	% Cases in which this element occurred	Average Cost and approx. % of total uninsured cost
Wages of uninjured	43	$ 20.40
Property damage	20	7.20
Wages of injured	83	27.30
Extra cost for overtime	4	5.00
Supervisor's time	86	5.70
Lower output from injured	12	5.90
Learning period of new worker	18	4.40
Cost of investigation and processing compensation	92	17.30
Medical cost not insured	52	8.70
Other uninsured costs	0	—
		$102.00 (rounded)

ROLLIN H. SIMONDS is Professor of Management, Michigan State College, Lansing, Mich. This article has been adapted from a paper presented at the 42nd National Safety Congress.

The Simonds method for estimating total accident costs is now included in the National Safety Council's Accident Prevention Manual. Complete information on it, including instructions, substantiation, short cuts, and statistical data on uninsured costs now available, will appear in a book on accident cost and control by John Grimaldi and Professor Simonds scheduled for publication by May, 1955, by Richard D. Irwin Company.

TABLE II

Relative importance of cost elements in 583 first-aid cases

Cost Element	% of total cost
Wages for uninjured	1
Property damage	negligible
Wages for injured	21
Supervisor's time	7
Lower output from injured	1
Medical attention	60
Cost of investigation (not preventive)	7
Other Costs	3
	100

don't realize most business executives are not even aware of it.

And what about the safety specialists, themselves? You may notice Mr. Connolly said *three* or *four* times. Some pretty prominent people in the safety movement have indicated that four to one was a good ratio, but that five, six or seven to one were pretty good ratios, too. Safety statisticians have often used two to one.

If the insiders don't know whether to multiply a known base by 2 or 6, how much faith can we expect an outsider to put in it?

Occupational safety work has long passed the point at which it was commendable merely to point out that accidents resulted in significant costs besides the medical and indemnity costs. Major executives expect the safety department to be able to show writer reasonable accuracy how its operations affect profits, just the same as may be demanded of other staff activities.

When you try to tell management that the typical lost-time injury costing around $400 in medical and compensation payments also costs him another $1,600 in indirect or uninsured costs in addition to insurance overhead, he is very properly skeptical.

In studying accidents in more than 40 industrial organizations, I have not found a single company in which the uninsured costs of lost-time cases were even as great as the so-called "direct" cost, to say nothing of being four times as great.

Table I shows what those uninsured costs actually amount to. These are 49 lost-time cases in metal working manufacturing concerns that were carefully investigated. Supervisors filled out forms shortly after the accidents when the events were still fresh in their minds. Costs occurring later were obtained by the safety department in accord with a precisely worked out procedure.

This total cost and approximate general distribution of costs is supported by similar figures for more than 200 cases in various industries. You will notice this total uninsured cost is in the neighborhood of one-fourth of the typical compensation and medical cost.

Does this mean, then, that the real uninsured costs of accidents amount to only a handful of dimes? Not by any means. A survey of Michigan industry I directed last year provided a great deal of evidence to support the conclusion that for every lost-time case there are about 10 doctor's cases and more than 150 first-aid cases. In addition, there are the no-injury accidents—accidents that are costly but, by good fortune, do not cause personal injury.

It is in those three categories of cases that the major uninsured costs are to be found. You need to use the method on average costs for each of these types of cases. Then you can support the figures with convincing evidence.

Table II shows the kind of costs resulting from first-aid cases. This is based on 583 cases.

the LIGHTER SIDE
NOW A SKELETON WITH ALL HIS TOES MISSING — POOR CHAP PROBABLY KEPT FORGETTING TO WEAR HIS SAFETY SHOES
BETTER CAUTION DRIPWELL ABOUT RIDING INSIDE OF LOADED GONDOLAS!
KEEP YOUR EYES ON YOUR WORK; I'LL DESCRIBE HER TO YOU—SHE'S BLONDE...

Sometimes when I consider what tremendous consequences come from little things—a chance word, a tap on the shoulder, or a penny dropped on a newsstand—I am tempted to think . . . there are no little things.

—Bruce Barton

Recovers Coal, Removes Fly Ash

With central vacuum system, coal is recovered from wind boxes quickly and cleanly in one-third the time formerly required with hoe and wheelbarrow. The same system is also used for cleaning out fly ash from the boilers and for general boiler room maintenance. Exhauster that produced the vacuum is at the far left, one of the hose connections to the vacuum manifold is at right foreground.

AN industrial vacuum cleaning system has enabled power plant engineers at Clifton Paperboard Company of Clifton, N. J. to cut hours each week from the laborious and time-consuming job of recovering unused coal from boilers. The same central vacuum system does double duty by cleaning fly ash from boilers—and in less than half the time formerly needed.

The plant operates four large Harrington stoker boilers fired with rice and barley coal fed from hoppers on to chain grate stokers. During the course of a week, 2 to 3 tons of fine coal slip through the 21-foot wide chain grates and collect in the wind box. About once a week the coal is recovered from the wind box; ashes from the fire bed fall into another section of the boiler.

Formerly, coal was recovered by using a long handled hoe to scrape the coal from the wind box out on to the boiler room floor. Because of the four-to-nine foot clearance between the boiler housing and the building wall, the 16-foot hoe handle was constructed in several sections connected by threaded joints. This meant that each time the hoe was pulled out of the wind box, the handle had to be partially dismantled, and then reassembled to reach into the boiler again. The recovered coal was shoveled into a wheelbarrow and taken to the coal yard where it would eventually be shoveled into a coal elevator for return to the hoppers. As a result, 6 men spent nearly a full day each week to remove the coal from the 31 wind boxes and return it to the feed hoppers.

Several years ago, Clifton Paperboard installed in its boiler room a Lamson Billmyre central vacuum cleaning unit to take over the job of coal recovery. Now the process not only is cleaner and more convenient, but also saves much time. The job that once took 48 man-hours is now accomplished by three men in 5-6 hours.

Here's how the system works. A vacuum is created by a 790-cfm blower, and a 5-in. pipe reaches various locations in the boiler room. Hinged caps in the pipe enable workers to connect a flexible-hose-and-nozzle assembly into the vacuum. A pair of hoppers is installed on the vacuum side of the exhauster.

To clean out a wind box, the flexible hose is connected to the nearest vacuum outlet and the metal nozzle inserted into the box. Coal is picked up by the vacuum and carried back through the system where it is collected in the primary separator.

Recovered coal is dropped through a hatchway at the bottom of the separator into a large, wheeled lory and taken back to the coal hopper for reuse. Fine particles and dust are reclaimed by a vacuum driven fly-ash reclaimer connected to the top of the secondary separator. The reclaimed fines are blown directly into the fire bed for their fuel value.

The central vacuum system is versatile. It is also used to clean out collected fly ash from the boilers during routine maintenance shutdowns. Formerly, fly ash was removed by three men. One man working in the boiler would shovel the ash into a bucket, the second would carry it to the boiler door, and the third man would empty the ash into a wheelbarrow for disposal.

Now, one man using the vacuum-connected hose can clean out a boiler. Actually, three or four men work simultaneously in individual boilers, each with a separate hose line, and remove the fly ash in less than half the time required by the old shovel-and-bucket system.

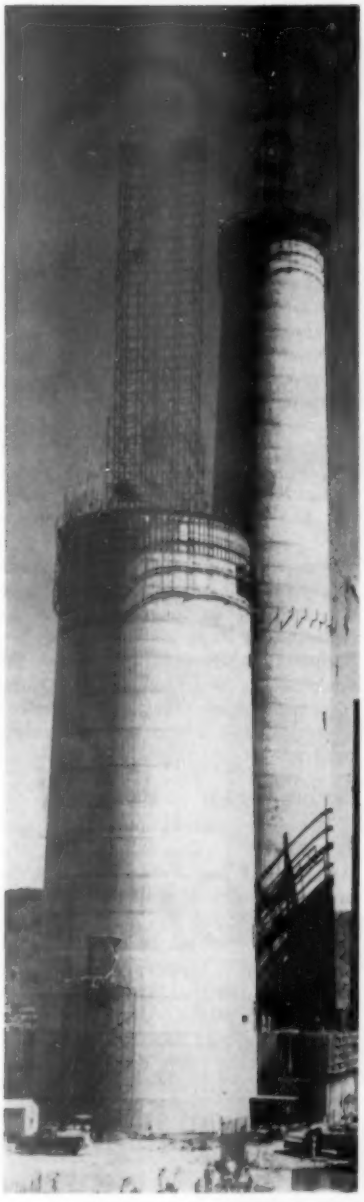
In addition to these two major uses of the vacuum system, the system is also used for routine clean-up of dirt and soot around the boiler room, on floors, walls, beams etc., with far less dust and in considerably less time than with broom and shovel.

Joseph K. Kroboth, chief engineer at Clifton Paperboard, estimates that the system paid for itself in two years. From the standpoint of convenience, cleanliness, and higher morale—all important to the operating efficiency of any plant, the system continues to pay dividends.

In our thinking we must preserve an open and enquiring mind, an ability to see things through the eyes of our opponents, a skill for understanding the motives and thoughts of those whom we oppose. Yet we must act in the light of the best knowledge and reason available to us at the moment.

—Carleton Washburne

Building Chimneys for The Atomic Age



Hoist towers rising 721 feet above the foundations for the world's highest chimneys. Space below the 150-foot levels where the flue enters will be used for such powerhouse facilities as offices, water tanks, cable and control rooms and bomb shelter.

TOWERING 707 feet above the foundations, the three chimneys of the new Clifty Creek generating plant are the tallest yet erected. The plant, which is being built near Madison, Ind., for Indiana-Kentucky Electric Corp., a subsidiary of the Ohio Valley Electric Corp., will feed power to the Atomic Energy Commission's vast Portsmouth Area Project near Portsmouth, Ohio.

The chimneys are 63 ft. 11 in., outside diameter, at the base, 30 in. thick, tapering to 16 ft. 11 in., and 7 in. thick at the top. Custodis Construction Company, New York and Chicago, is the direct chimney contractor.

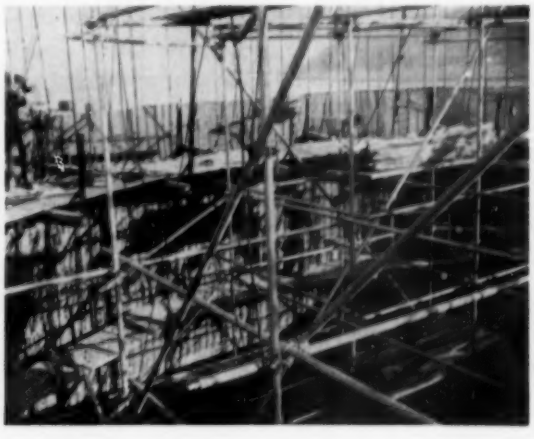
To hoist men and materials for the construction of the chimneys, two Gold Medal double-shaft hoist towers were supplied by Patent Scaffolding Company. Each shaft is two wheelbarrows wide. The shaft used for hoisting men and materials is equipped with an over-wind safety device to prevent excessive speed. The other is used for a 36 cu. ft. concrete bucket which dumps into a 55 cu. ft. hopper. The towers also act as support for hoisting 10 foot sectional forms. Ultimate height of the tower in a 707-foot chimney is 721½ feet.

The first 34 hoist tower sections, each 6½ feet high, used extra heavy legs. The top 54 sections used standard legs.

All told, 5½ miles of Tubelox steel scaffolding was used. These served to build runways for wheeling concrete from the towers to the working platforms, to make a wider base for bracing the tower and to serve as support for hoisting the forms. On all three chimneys these functions were performed with standard hoist tower parts. All towers were guyed to the inside wall every 30 feet of height.

Concrete is dumped to forms from platform that rides on exterior form assembly. Hoist tower is braced by components of 1-, 2-, and 3-inch pipe.

Interior forms are 2-foot wide steel panels with clips on back to hold circumferential bracing rods. On this chimney 5½ miles of steel scaffolding components help to brace the hoist tower.



SMALL BUSINESSES and ASSOCIATIONS

By A. M. BALTZER and ROBERT D. CURRIE

Small Business Program Staff
National Safety Council

Association Backs State Program

The experience of the Department of Labor of North Carolina has shown that a special industry drive is, beyond doubt, the most effective way to meet the needs of the small plant in accident prevention activity. W. C. Creel, safety director for the Department of Labor, states that their accomplishments in safety could not have been accomplished without the fine assistance of the trade associations in that area.

The first of the special industry safety drives in North Carolina was in the wood furniture plants. A study of the frequency and severity rates of the industry showed that over a three year period the rates were higher than comparative state and national averages. In addition, the workmen's compensation rate was steadily climbing.

Armed with factual information, the Department of Labor approached the Southern Furniture Manufacturers' Association to which almost all the North Carolina furniture plants belong. They showed the officials of the association that preventable accidents were costing the furniture plants close to a million dollars a year. It was then shown how an industry-wide safety program could be developed into a much needed safety service. The Association approved the plan, endorsed it and urged each plant to cooperate fully.

With the backing of the association, the work of the State inspectors and the full cooperation of the participating plants, a number of accidents in the industry began to be reduced. At the end of two years, the industry's lost time injury frequency rate had dropped from 22.32 to 15.80; at the end of three years to 12.48. Since the end of the drive the frequency rate has remained at this low level.

Furthermore, the workmen's compensation insurance rate for the North Carolina wood furniture manufacturing was reduced by 15 per cent. This is all the more impressive when you consider the average for compensation rates in the state for the same period increased some 6 per cent.

Naturally, the Association and the North Carolina Department of Labor are proud of the record. The program not only did the individual plants much good, but was of untold value in public relations, both to the Association and the Department of Labor.

This is just one more example of what an association with the cooperation of others can do in reducing employee injuries within their industry.

Oil Industry Regional Safety Conferences

The *Western Oil and Gas Association* recently sponsored a series of Oil Industry Regional Safety Conferences under the chairmanship of John M. McKenzie, general chairman, Petroleum Section, NSC. These regional conferences include the San Francisco Bay area, Santa Barbara Coastal area, San Joaquin Valley and Southern California.

The conferences are foremen's meetings designed to promote the widest possible participation. Registered attendance at the four regional safety meetings in 1954 was 1,737 foremen and supervisors. Attendance is for one day only. The program was repeated the second day.

These conferences suggest many accident prevention ideas and methods which can be used by foremen on the job. They extend the foremen's knowledge of proved accident prevention techniques. In short, the foreman is better able to help pull his company's and the industry's rate curve downward.

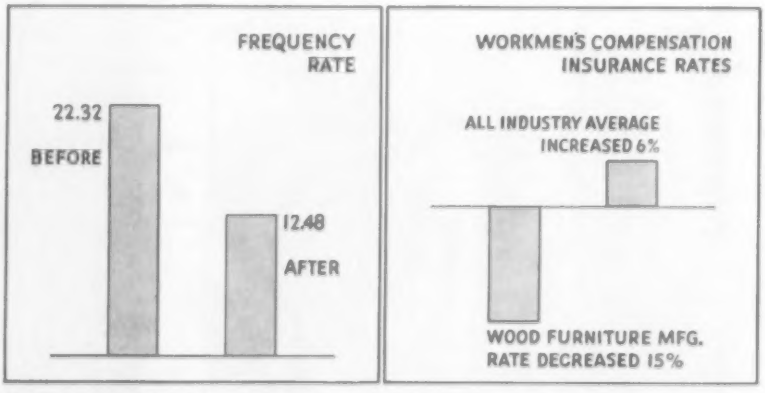
Last year voluntary, confidential opinion polls were conducted after each conference. These frank statements have been helpful in appraising the conferences. The opinion surveys have provided evidence that the conferences strongly stimulate safety thinking and action.

According to the association the conferences have also favorably influenced public opinion toward the oil industry and have demonstrated to government officials the petroleum industry's constructive safety program.

Going Down

The Information and Technical Development Committee of the *American Wood Preservers Association* recently conducted a wood preserving industry safety survey. The survey developed information to compute an injury frequency rate for the industry. All replies were held confidential and were tabulated by the National Safety Council.

The results from 134 plants representing over 10,000 employees with an exposure of about 22,000,000 man-hours work showed that this industry has reduced its frequency rate from 88 to 38, more a 50 per cent decrease, in five years.



Effects of a special industry drive to prevent accidents in small plants conducted by North Carolina Department of Labor assisted by Southern Furniture Manufacturers Association.

USSSCO's new *all Plastic* SAF-I-SPEC

new styling assures wearer acceptance

new design Acetate frames provide greater strength

new light-weight for comfort
(new SAF-I-SPECS weigh less than one ounce)

new colors in charcoal and burgundy

2 sizes
Large or Small
for men
and
women

This new light-weight safety spectacle features ophthalmic type temples and strong, rugged brow-bar — with nickel steel hinges for greater strength and longer life. Velvet-soft nose piece. Lens locks in place securely — easily removable without tools. Meets Federal specifications for optical qualities and impact resistance.

A fully experienced USSSCO service engineer is available to assist you in your safety program.

Contact your nearest USSSCO Sales Office listed in the classified section of your telephone directory or write direct to USSSCO General Offices, Kansas City, Missouri.

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to Make Safety Work

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IN CANADA: PARMELEE, LTD., TORONTO & MONTREAL

PERSONALS

Republic Steel Names Tysse Manager of Safety

JAMES W. TYSSE has been appointed manager of safety for Republic Steel Corp. with headquarters in Cleveland.

James W. Tysse

Until his new appointment Mr. Tysse was safety supervisor for Republic's Chicago district, which includes plants at South Chicago and Moline, Ill. He succeeds WALTER M. NELSON, recently named an assistant director of industrial relations.

Republic's Chicago district plants have won several National Safety Council and Corporation safety awards during Tysse's eight-year tenure as safety supervisor. He joined Republic in 1944 as a member of the Chicago district industrial relations department.

A graduate of Hope College, Holland, Mich., Tysse is a member of the executive committee of the Metals Section, National Safety Council. He is a past chairman of the Calumet engineering division of the Greater Chicago Safety Council and is on the board of trustees of the South Chicago Community Hospital.

As a member of Republic's Speaker's Bureau during the last two years he has given many talks on safety to Chicago area civic and fraternal groups.

Universal Atlas Appointments

GORDAN C. HUTH has been elected to the newly-created office of vice-president, industrial relations of Universal Atlas Cement Company, with headquarters in New York. Mr. Huth, a native of Superior, Wis., started with Universal Atlas as a machinist helper in the Duluth Plant. After working in the chemical laboratory and in the safety and labor department, he became supervisor of safety and labor. Appointed safety director at Chicago in 1930, he served in this and in various industrial relations capacities until 1937 when he became assistant manager, industrial relations.

Mr. Huth was assistant director of industrial relations for U. S. Steel Corp. of Delaware from 1938 to 1941 when he rejoined Universal Atlas in New York to become assistant manager, in which capacity he served until his election to the new vice presidency. He has been a director of the company since March 1954.

PHILIP N. BUSHNELL has been appointed director of labor relations; JAMES F. COLLINS becomes director of personnel and training; and WILLIAM A. KIPP director of safety.

Mr. Bushnell has been with the cement company as assistant manager, industrial relations, since 1943. He is a native of LaGrange, Ill., and attended Beloit College, Wis. He entered industrial relations work as assistant to the managing director of the National Safety Council at Chicago in 1927, and became safety engineer with the Portland Cement Association in 1933. In 1937, he was appointed industrial relations director of the Missouri Portland Cement Company at St. Louis, Mo., serving in that capacity until the start of his association with Universal Atlas six years later. He is a member of the Industrial Relations Research Association and past chairman and member of the Executive Committee of the Cement and Quarry Section of the National Safety Council.

Mr. Collins joined Universal Atlas in 1946 as supervisor of personnel and training. He is a native of New York City, where he attained high scholastic achievements. Along with a B.S. from Fordham Universtiy in 1935, he has an M.A. from New York University in 1936 and a Ph.D. from Fordham in 1941. He was retained on the teaching staff of Fordham until World War II, when the U. S. Navy requested his services. In the Navy, Dr. Collins spent some times as assistant battalion officer at USN Midshipmen's School, Columbia University, before joining the staff of the Secretary of the Navy. He is a member of the New York Personnel Management Association and the American Society of Training Directors.

Mr. Kipp is a native of Birmingham, Ala., and a graduate of Birmingham Southern College. He first joined Universal Atlas at its Leeds, Ala., plant in 1924 as secretary to the plant manager and,

—*To page 46*

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How would you like to have an experienced safety man now retired work for your expenses. Thirty years' experience for free. Address Box 448, NATIONAL SAFETY NEWS.

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Safety Engineer, Director, with successful background instituting and maintaining effective Safety Programs in Manufacturing Industries. Would appreciate hearing from those needing services of a hard-working practical man. Complete resume furnished upon request. Address Box 449, NATIONAL SAFETY NEWS.

SAFETY ENGINEER WANTED

Engineering graduate preferably with gas and electric experience and/or safety experience. North central state utility wants man to assist present Safety and Transportation Engineer and later take over the safety work to separate the two jobs. Reply giving all pertinent data, salary desired, experience and education. All replies will be kept confidential. Address Box 447, NATIONAL SAFETY NEWS.

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safe, fast, low-cost material lifting!

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A SLING DESIGNED TO HANDLE EASILY WILL HELP YOU HANDLE LOADS faster. That's the reason why flexibility, lightness, and *handling ease are results of the basic design* of Macwhyte ATLAS Round-Braided Slings.

Here's how handling ease is built into the ATLAS Sling: All ropes in ATLAS Slings are braided in a continuous spiral path. Ropes are endless—all ropes in the body are the same length and carry an equal share of the load. There are two pairs of Left Lay, and two pairs of Right Lay ropes—making a total of eight ropes in the equally balanced braided body of the Sling.

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The Macwhyte Sling Catalog illustrates many standard designs in Round-Braided, Flat-Braided, Single-Part, and Grommet Slings.

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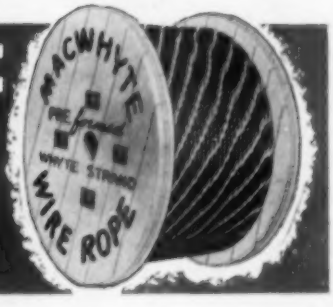
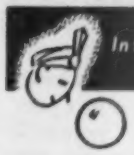


COMING EVENTS



Apr. 4-5, Toronto, Ont.
Industrial Accident Prevention Associations, Annual Conference (Royal York Hotel). R. G. D. Anderson, general manager, 90 Harbour St., Toronto 1, Ont.

Apr. 11-15, New York
Twenty-fifth Annual Safety Convention and Exposition, Greater New York Safety Council (Hotel Statler). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 East 42nd Street, New York 17.

Apr. 13, Wabash, Ind.
The Indiana Area Safety Meeting of the National Mineral Wool Association. W. E. Clark, chairman, American Rock Wool Corp., Wabash, Indiana.

Apr. 13-15, Clarksburg, W. Va.
West Virginia Safety Council, Inc., Annual Conference and Exhibit (Stonewall Jackson Hotel). Cecil Dodd, conference chairman, Weirton Steel Co., Weirton, W. Va.

Apr. 19-20, Fort Wayne, Ind.
Northeastern Indiana Safety Conference and Exposition (Chamber of Commerce Building). Ivan A. Martin, manager, Safety Council, Chamber of Commerce of Fort Wayne, Fort Wayne 2, Ind.

April 19-21, Niagara Falls, N. Y.
Fifteenth Western New York Safety Conference, in cooperation with the American Society of Safety Engineers (Niagara Hotel). Patsy E. Gismondi, executive secretary, 1436 Delaware Ave., Buffalo 9, N. Y.

Apr. 26-28, Grand Rapids, Mich.
Twenty-fifth Annual Michigan Safety Conference (Pantlind Hotel and Civic Auditorium). R. H. Goring, executive secretary, c/o Michigan Bell Telephone Company, Detroit 26, Mich.

Apr. 26-28, Cleveland
Twenty-fifth All Ohio Safety Congress and Exhibit (Hotel Cleveland and Hotel Hollenden). Headquarters at Hotel Cleveland. A. W. Moon, congress manager, c/o Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus 15, Ohio.

Apr. 28, Platteville, Wis.
Southwest Regional Safety Conference.*

May 2-4, Allentown, Bethlehem, Easton, Pa.
Twenty-eighth Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, secretary-treasurer, Lehigh Valley Safety Council, 602 E. Third St., Bethlehem, Pa.

May 5-6, Baltimore, Md.
Governor's Safety and Health Conference and Exposition (Lord Baltimore Hotel). Joseph A. Haller, executive chairman, c/o State Industrial Commission, 741 Equitable Bldg., Baltimore 2, Md.

May 13, Marinette, Wis.
Fox River Valley and Lakeshore Regional Safety Conference.*

May 16-18, Syracuse
Central New York Safety Conference and Exposition. Newell C. Townsend, administrative secretary, Safety Division, Syracuse Chamber of Commerce, 351 S. Warren St., Syracuse 2, N. Y.

May 17, Madison, Wis.
Rock River Valley Regional Safety Conference.*

May 18-20, Winston-Salem, N. C.
Twenty-fifth Annual North Carolina Safety Conference (Robert E. Lee Hotel). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

May 19, Racine, Wis.
Southeast Lakeshore Regional Safety Conference.*

May 19-20, Duluth, Minn.
Thirty-first Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). John A. Johnson, secretary, 18 Federal Bldg., Duluth 2, Minn.

June 2-3, Victoria, B. C.
Twenty-first Annual Forest Products Safety Conference (Empress Hotel). Pat Reiten, secretary, Simpson Logging Co., Shelton, Wash.

June 2-4, Richmond, Va.
Virginia Safety Association, Annual Meeting (Jefferson Hotel). William M. Myers, executive secretary, Virginia Safety Association, Room 302, 1103 E. Main St., Richmond 19, Va.

June 7-8, Hartford, Conn.
Tenth Annual Conference of the Connecticut Safety Society (Statler Hotel). William G. Willse, manager, National of Hartford Group, 1000 Asylum Avenue, Hartford 15, Conn.

June 7, Wisconsin Rapids, Wis.
Wisconsin River Valley Regional Safety Conference.*

Sept. 13-15, Cleveland, Ohio
Seventeenth Annual Ohio State Safety Conference and Exhibit (Hotel Carter). Michael L. Stefani, general manager, Cleveland Safety Council, 2073 East 9th Street, Cleveland 15, Ohio.

Sept. 15-16, York Harbor, Me.
Twenty-eighth Annual Maine State Safety Conference (Marshall House). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Me.

Oct. 17-21, Chicago
Forty-third National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

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*For information about Wisconsin Regional Safety Conferences write R. W. Gillette, exec. secretary-treasurer, Wisconsin Council of Safety, State Office Bldg., Madison 2, Wis.

Fellowship, democracy, business and hash have a common dependency on a man's faith in his fellow men.

Poor people have kinfolks, the well-to-do have relatives, and the rich have heirs.

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NEW DU PONT SAFETY FLOOR WAX

fortified with anti-slip LUDOX® (colloidal silica)

Gives superior slip resistance Plus beauty, protection and long wear

For offices, schools, hospitals, stores, restaurants and other public buildings Du Pont Safety Floor Wax is offering a new measure of anti-slip security. *And* it gives this vital added protection with no sacrifice in beauty, washability and extra-long life!

A premium slip-retardant wax, Du Pont Safety Floor Wax is suitable for linoleum, asphalt tile, rubber tile, vinyl tile or any other resilient floor covering. It's water-resistant—dries to a satin gloss in 20 minutes, buffs to a high shine. Can be damp-mopped and buffed again and again with no loss in anti-slip protection! Investigate Du Pont Safety Floor Wax today!

HERE'S WHY DU PONT SAFETY FLOOR WAX MAKES EVERY STEP SAFER! "Ludox," the amazing anti-slip ingredient in Du Pont Safety Floor Wax, is colloidal silica; tough, transparent particles of minute size. Under the pressure of a footstep, these particles are pushed into the larger, softer wax globules. This action absorbs much of the foot's forward-moving energy—gives positive traction underfoot!

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For Industrial and Institutional Floor Maintenance

Available through a Du Pont Floor Wax distributor in your area.
For name of nearest source write Du Pont Co., Specialties Sales, Wilmington, Del.

Personals

—*From page 42*

in 1937, was there appointed safety director. He left the company in 1941 to engage in security work for the Army Ordnance Department and, in 1943, was attached to the Security Branch of Army Intelligence as Chief of the Safety Division in the Third Army Area and commissioned a first lieutenant. He separated from the Army in 1947 with the rank of major and rejoined the cement company at New York as staff assistant in the industrial relations department. He was appointed supervisor of safety in 1948. He is a member of the Manhattan Chapter, American Society of Safety Engineers; Cement and Quarry Section of the National Safety Council; the Safety Advisory Committee of U. S. Steel Corp; and lt. col. in the Military Police Corps of the U. S. Army Reserve.

After 31 years as personnel, employment manager and safety director with National Lead Company, EUGENE A. STOCK has retired. His employment with the company began July 15, 1919 and since September, 1953, he had been at the St. Louis Smelting and Refining Division at Fredericktown, Mo. His industrial service also included three years with the Cities Service Oil Refinery at East Chicago, Ind. He has been affiliated with the American Society of Safety Engineers and the Mining and Metals Sections of the National Safety Council.

Kreml Named to Head NU Transportation Center

FRANKLIN M. KREML, director of the Northwestern University Traffic Institute since its establishment, has been appointed director of the University's new Transportation Center.

Mr. Kreml's appointment, which was effective March 15, is for one year. Ray Ashworth, executive assistant to the director of the Traffic Institute, will be acting director during Mr. Kreml's absence.

The Transportation Center will carry on programs aimed at solving major problems in the highway, rail, air, pipeline and water divisions of the nation's transportation industry.

Mr. Kreml has received numerous awards in the traffic field. He was given the 1952 David Beecroft Award on Traffic Safety, annual presentation of the Society of Automotive Engineers, for his work in traffic law enforcement. He has held numerous posts with the National Safety Council and at present is vice-chairman of its board of directors and vice-president for traffic and transportation.

ALVIN D. BATTEY has been appointed assistant director of the Statistics and Research Division of the National Safety Council, in which capacity he will assume direct charge of additional activities involving the development and use of statistics and statistical procedures.

Mr. Battey received his M. A. degree in Business Administration from the University of Chicago, after which he taught statistics and accounting at the University of Akron before joining the Council staff in 1929. His work in the Statistics and Research Division has included editing the *Accident Facts* book, enlisting the interest of city and state health departments in the detailed classification of accidental deaths, and the development of statistics in special fields.

ROBERT W. WOOD, procedures analyst in the industrial relations department for the last two years, has been named staff safety supervisor for Kimberly-Clark corporation. He succeeds Konrad Tuchscherer who is being transferred to the company's Memphis, Tenn., mill as personnel superintendent.

Mr. Wood, who has been with Kimberly-Clark for 29 years, spent the first 13 years of his paper mill career in operations at the Badger-Globe unit of Neenah mill. He became engaged in personnel work in 1940, and specialized in accident prevention at Lakeview until 1947 when he returned to Badger-Globe for a three period prior to his appointment in 1950 as head operating personnel man for Neenah mill.

The new staff safety supervisor has been active in his community for many years and currently is vice-chairman of Neenah chapter, American Red Cross.

WILLIAM FASSULIOTIS has joined Great Lakes Carbon Corp. as district supervisor, protection engineering for the Insurance Division in the company's executive offices in New York City.

Mr. Fassuliotis was formerly with the Arabian American Oil Company as technical services specialist on fire protection and safety engineering matters. He also served with the National Board of Fire Underwriters. His education includes a BME degree from the College of the City of New York and a MME degree from the Polytechnic Institute of Brooklyn.

Award Honors Late Greyhound Safety Director

WILLIAM F. GRANT, Greyhound Corporation general safety director who died October 6, has been honored in the naming of an annual award for the Greyhound national safety contest in his memory.

The William F. Grant award will be presented to the Greyhound company achieving the best record for miles between accidents. The first presentation will be made to the winner of the 1954 contest, soon to be announced.

There are two divisions of the Greyhound national safety contest. In addition to actual miles, there is also a competition based on percentage improvement in accident-free miles. The Marcus Dow award, named in honor of Greyhound's first national safety director, will continue to be the prize in this contest.

At the time of his death, Mr. Grant had been with Greyhound for 21 years and had served as general safety director since 1947.

Mr. Grant's successor is J. P. Hightower, also a 21-year veteran of the Greyhound organization. He has served as safety director of Atlantic and Pennsylvania Greyhound Lines.

KEY MAN in your crusade for safety

Eyes that are protected—*and see well, too*—are your best insurance against mishaps of all kinds: to worker, to costly machinery, to material.

6 adults out of 10 need visual correction of some sort. Just as many of your workers need it—if they're to perform their tasks comfortably, efficiently and safely.

Industrial management recognizes the great potentialities of eye safety programs which include visual correction. However, it sometimes is apt to pursue courses that result in considerably less than the maximum benefit.

The key lies with the eye care specialist. With him rests the responsibility of administering the corrective phase of an industrial vision program—just as the problem of prescribing drugs and other therapeutics lies with the professional in medicine.

A Bausch & Lomb representative may be of inestimable aid in the development of your own industrial vision program. He can help you in any phase: defining eye hazards, specifying protective equipment, establishing a full scale program employing the cooperation of eye care specialists in your area—for lowered costs, higher productivity, better employee relations as well as a distinguished safety record.

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GREEN CROSS NEWS

Activities of Local Safety Councils and Chapters

Small Business Emphasis

Safety for Small Business will hold a prominent program spot at the 28th Annual Eastern Pennsylvania Safety Conference to be held May 2, 3 and 4 in the three participating cities of Easton, Allentown and Bethlehem.

The Industrial Group sessions, always an important part of the Conference, will hold five special sessions, fabricators, foundry and machine shop, mercantile, process industries and public utilities, followed by the general industrial program. These meetings are scheduled for Wednesday, May 4, at Lehigh University, Bethlehem. Secretary-Treasurer Harold A. Seward is enthusiastic over attendance and program prospects.

B.C.'s Big Safety Week

Thousands of workers in British Columbia's vast logging, lumber and paper-making operations have been asked to observe the Third Annual Forest Products Safety Week, May 10 to 14. The big project is sponsored jointly by the British Columbia Loggers Association, the B. C. Lumber Manufacturers' Association and the Pulp and Paper Association, with the cooperation of the I.W.A. and the Workmen's Compensation Board.

The promotional campaign started around the middle of February. The program includes meetings, newspaper and radio support, trade publication articles, theatre announcements, window displays, "No Accident Flags," hard hat stickers, posters, car bumper signs, payroll inserts, letters from management to employees, a speakers' bureau and many other promotional devices to focus attention during Safety Week and every day thereafter.

According to James Roughton, manager of the Accident Prevention Department of the Loggers' Association, the Safety Week observance in his organization resulted last year in a reduction of 60% in accidents in 85 camps operated by Association members, and the influence was felt long after the five-day observance.

The cooperating organizations also experienced worth-while reductions, carrying the safety message into the lumber camps, in the mess halls, the mills and transportation branches in so many impressive ways, it will doubtless pay big dividends once again, especially since strong emphasis is given to the sound idea that every week should be a Safety Week.

Successful California Conference

The fifth annual California Industrial Safety Conference, held in Los Angeles Feb. 3 and 4 at the Biltmore Hotel, was attended by 1500 interested persons. Sessions included manufacturing, construction, forest products, petroleum, mining, transportation and communications, utilities, trades and services, agriculture and research and education.

In his keynote address, Governor Goodwin J. Knight stated that accidents at work cost $98,000,000 in insurance for just one year in California. "But this is only a small part of the burden imposed on our California economy by work injuries and deaths," he said. The governor added that the indirect costs—loss of time, production and wages and damage to equipment, are "staggeringly higher," running to almost $400,000,000. "This is the equivalent of $44 for every man, woman and child in California."

Even more significant than the money loss, Governor Knight continued, is the "tragic disruption of broken homes." He emphasized that the two great powers in industry, management and labor, are in "complete unanimity on the prevention of work injuries."

Efforts of these two powers, he said, have resulted in the last five years in a "steady and notable drop" in injuries. In 1950, 42 out of every 1000 Californians were temporarily or permanently disabled at work "but 1954 witnessed the lowest rate of injuries to our workers in history," the governor said, "34 per 1000 workers."

Joins Springfield Staff

Albert L. Phillips of Springfield, has joined the staff of the Safety Council of Western Massachusetts. He is a graduate of American International College, with a science degree in personnel and business administration. His professional background includes industrial production, personnel and safety work. He will coordinate the Council's traffic, motor transportation and child safety services.

Phillips attended the recent Institute for Safety Council Managers held at Yale University. The expansion of the Council's activities has followed a steady increase in financial support and this in turn has made it possible to enlarge the staff.

Council Reactivated

The Kern County Safety Council with headquarters at Bakersfield, Calif., has projected interesting plans for a full-time manager and staff, to direct a broad program of activities covering traffic, home, school, industry

and farm safety. The Council has been operating on a small budget as a volunteer organization since it was set up some six months ago.

The governing board is planning a county-wide drive for an $18,000 budget, with financial support from the county and its larger cities, to supplement the private funds that will be sought. Ivo S. Keyser, head of the Sandercock Trucking Company and vice president of the recently consolidated California Trucking Association, a leader in the trucking industry, is the president of the Safety Council. The governing board is made up of business, industrial and agricultural leaders of the area.

Butler County Conference

Industrial Safety was given strong emphasis at the 10th Annual Butler County Regional Safety Conference, held on March 1 at Middletown, Ohio. Sessions that drew large attendance included paper and paper products, machine tool and metal, fire prevention, Workmen's Compensation, commercial vehicle, women and home and school sessions.

The banquet speaker was Dr. Elwood C. Nance, president, University of Tampa, Tampa, Fla. Noble Dutton, assistant director, Field Organization, NSC, was one of the luncheon speakers and at the traffic meeting discussed "Coordinating a Community Traffic Safety Program."

San Jose Awards

Some thirty awards were presented to San Joaquin County and San Jose companies and firms at the Third Annual Inter-Plant Safety Award Dinner, sponsored by the Industry and Commerce Committee of the Santa Clara County Chapter of NSC on February 15 at the Willow Glen Methodist Church in San Jose, Calif.

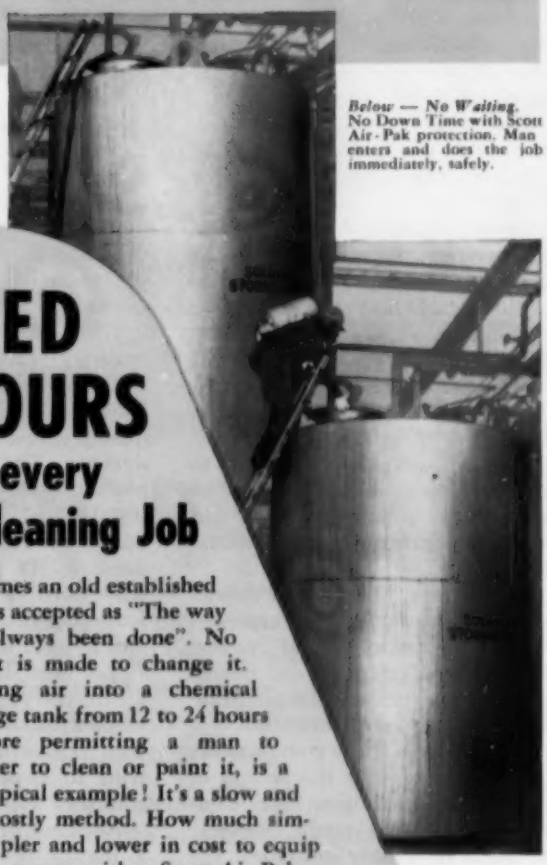
The banquet speaker was Ralston A. "Dutch" Derr, industrial agent, City of Hayward, Calif. The awards were presented by George Offerjost, Continental Can Company, Chairman of the Awards Committee. Robert J. Simmons of IBM was master of ceremonies. A large attendance enjoyed the interesting and stimulating program.

Scott Air-Paks

Cut Repair and Maintenance Costs, Safely!

Right — Old Method. Blowing air into chemical storage tank for 24 hours before man can safely enter.

Below — No Waiting. No Down Time with Scott Air-Pak protection. Man enters and does the job immediately, safely.



SAVED 24 HOURS on every Tank Cleaning Job

• Many times an old established practice is accepted as "The way it has always been done". No attempt is made to change it. Blowing air into a chemical storage tank from 12 to 24 hours before permitting a man to enter to clean or paint it, is a typical example! It's a slow and costly method. How much simpler and lower in cost to equip a man with a Scott Air-Pak — open the tank and let him go to work Immediately — Safely and Quickly!

On Hazardous Jobs Scott Air-Paks Help Management and Labor Breathe Easier

Does tank cleaning and painting play a part in your process? Let us tell you more about the Scott Air-Pak Way.

Write for free booklet "Scott Air-Paks Save Money, Man Hours and Men for Industry!"

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U.S. Plans to Aid State Safety Programs

Legislation was recently introduced in the Senate which would provide grants-in-aid to State agencies with responsibility for the establishment and maintenance of safe workplaces and safe practices in industry.

Following is a statement by Department of Labor concerning Grant-in-Aid Legislation For Safety:

President Eisenhower recommended such legislation in his budget message to Congress. He pointed out that the need for legislation of this kind is imperative as each year approximately 2 million workers in the United States are injured on the job, 15,000 are killed, and the annual cost of these accidents amounts to approximately $3½ billion. The losses due to broken homes and human suffering cannot be measured.

Few State labor departments are today equipped to make necessary inspections and advise management on ways and means to prevent work accidents. State labor departments are the one main branch of State governments that do not receive the benefit of Federal financial grants. If Federal grants were made available to them for safety activities, the same progress as has taken place in State public health, vocational rehabilitation, vocational education and welfare programs can be expected. All of these programs are partly financed by Federal funds.

Secretary of Labor Mitchell has emphasized, however, that occupational safety must be administered by the States. This program is designed merely as a booster which will help the States to help themselves.

For forty years American management, labor, public and private agencies have been developing safety techniques which if generally applied could prevent the vast majority of injuries. These techniques are now being used successfully in larger establishments which employ safety personnel, but they are not reaching the 2 million workplaces where more than half of all workers are employed and where at least 70 per cent of the industrial accidents occur.

The problem is one of furnishing these smaller employers a safety service similar to that provided by the fulltime safety personnel of the large employers. The States should be equipped to give this service. Very few are so equipped today. A study made by the President's Committee on Occupational Safety in 1949 showed that of 37 States reporting, less than two-thirds spent as much as ten cents per year per industrial worker.

The Labor Department's Bureau of Labor Standards has given assistance to a number of States in developing special industry drives for one or more industries. The results have been phenomenal. For example, during 1953-54, the South Carolina laundry industry reduced its accidents by 79 per cent; Maryland woodworking by 48 per cent; Iowa meat packing by 9 per cent; and Florida ice manufacturing by 70 per cent. These illustrations indicate the progress that might be made if State agencies were available to give this service to industries in general throughout the country.

Accident prevention is not only a matter of proper concern for State governments; it also directly concerns the people of the whole nation. The increased tax revenues that would result from steady employment and reduction in public assistance and rehabilitation payments would substantially exceed the cost of the proposed program.

Locking Out Switches Safeguards Maintenance

LOCKING OUT the switch boxes that control power to electrically-driven machines is one of the most important precautions in maintenance work. These steps are recommended in setting up a system:

1. Make each worker responsible for his own safety by providing him with his own padlock, either combination or key-type.

2. Issue only one key for each lock. The supervisor, however, should keep a master list of key numbers, and the extra key to each lock in his department. But the extra keys should never be loaned out. Keep extra copies of combinations, where combination padlocks are used, in the hands of a single supervisor.

3. If a supervisor uses the extra key during emergencies, the old lock and extra key should be destroyed and replaced. This precaution eliminates the possibility of the original key turning up and removing the padlock at the wrong time.

4. Check to see that no two locks and keys are the same. Best insurance against duplicate locks and keys is to purchase padlocks made by a reputable manufacturer.

5. The company should purchase all padlocks for employees, rather than let them supply their own. This insures high quality padlocks, such as the laminated, pin-tumbler type, that cannot be opened or broken.

6. Establish a careful clearance policy when two or more workers, or departments are involved. Faulty clearance systems often cause casualties even though every man has his own padlock.

7. Require each man to attach his own padlock to a switch control, even though it is already locked. (Steel tongs should be attached to switch boxes to accommodate more than one lock. This can consist of two pieces of ⅛-inch metal with the necessary number of padlock shackle holes.)

8. Impress each employee that even though someone else has already locked the controls, he will not be protected unless he attaches his own padlock.

9. Prevent men going off a job at the end of a shift from removing their locks until those on the next shift have attached their locks.

10. Identifying individual padlocks is suggested in large plants where the controls may be some distance from the operation under repair.

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The Group Approach

By GEOFFREY SIODMAK

Most persons want the group's approval. When its leaders can be instilled with the will to perform safely, the rest follow

ACCIDENT prevention is both a science and an art. It represents, above all, control—control of man's performance, machine performance and physical environment.

In the words of the President of the United States, "The plain fact is that our nation cannot afford the needless loss of skilled workers if we are to produce for prosperity in this country and for peace abroad." In other words, the thousands of deaths, the millions of injuries, and loss of billions of dollars caused by occupational accidents in one year alone can not be absorbed without serious disturbance to our nation's economy.

Some authorities feel that an accident is preceded by a sequence of events. There are five factors in this sequence. They are: social environment, fault of person, unsafe act, accident, and finally, injury. It is the basis of this accident theory that we can visualize these five factors as blocks standing on end. If the first block, social environment, falls, it pushes the next block, fault of person, over and so on until the sequence is completed and the injury occurs.

If we accept this theory of injury prevention, we can see that some interesting things can be done with it. With the removal of one of the causes, the action of all the following factors become ineffective. If we can remove the first factor, social environment, so that it does not fall upon the other factors, we have eliminated the accident. If the series is interrupted by the elimination of even one of the several factors that comprise it, the injury will not occur.

By ancestry and social environment are meant inherited characteristics and those developed by the environment that the person has lived in. A combination of inheritance and environment may cause the next factor, fault of person. Nervousness, excitability, inconsiderateness, and other personality traits contribute to the committing of unsafe acts.

If we could remove either the factor of ancestry and social environment or the fault of the person, it would follow that we would remove the cause of the accident and therefore prevent the injury. These first two factors of the accident sequence are in the realm of psychology.

The High-Accident Groups

Much has been spoken about the factor of accident proneness. What is it that causes a small percentage of workers to have such a large percentage of accidents? It has been stated that the accident-prone person is likely to come from an unhappy, broken home. His health in childhood and adolescence was good and he was physically vigorous. He is an individual who loves action, machinery and daring. He is impulsive rather than deliberative. He resents authority and shows antagonism to control. He is unstable and therefore does not finish school, is casual in his social relations, and changes jobs often.

In many ways the above description could describe many people that you or I know. Because there is no great marked difference in the accident prone, they are often hard to find and eliminate or attempt to rehabilitate before an accident is caused.

Not only do we have the accident prone, but other classifiable types have accidents at a greater rate than the "normal" worker. The malingerer shows common exaggeration of symptoms for compensation motives. The psychopath in industry is a very grave problem, for he does not want to be helped. Both of the above have accidents which serve in an unconscious as well as in an objective way to provide a solution for inner conflicts and which serve as an escape in the individual, revenge against authority, and self-punishment.

The human mind is such a complex mechanism that it is difficult to point out one facet and say that that certain thing is the cause for people having accidents. The basis for accident prevention from the psychological point of view is diagnosing the facets of the worker which will cause him to have a propensity toward having accidents.

The industrial psychologist has a problem, for it is not the extreme cases that he has a chance to diagnose. These people usually do not seek or are not able to obtain employment. It is those inbetween, the differing "shades of gray" that he must find and treat.

One of the major factors contributing to accidents is fatigue. There are at least three different conceptions of fatigue, from the accident standpoint. First is psychological fatigue. This comes about from boredom and tiredness from uninteresting repetitive tasks. The person develops a feeling of lassitude, desires to do

—*To page 90*

This article has been condensed from a paper presented at a Seminar on Industry Psychology at Occidental College, Glendale, Calif.

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SAFETY SHOES

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Industry's Pack Mules

(From page 31)

is cheaper than floor or truck repairs or damage to truck contents.

4. Overall Design. Select the unit best suited and recommended for the job. Be sure to check clearance of doors, aisles, elevators, etc. A new truck that won't go through a door can be embarrassing.

5. Conditions of Service. Under service conditions also consider the matter of quietness of operation. The reason and need for quietness is apparent if the truck is used in the presence of customers, patients, or the public. However, it should be noted too, that quiet operating trucks create less disturbance and distraction for production line workers near aisles and runways, and they are handled more carefully by the truck operators. Pneumatic, semi-pneumatic, cushion-tread, or solid rubber tires are more desirable in this respect than other types. Ball bearing, rubber tired wheels are exceptionally quiet.

6. Maintenance. A good truck should stay in service with ordinary care, plus periodic lubrication. So, be sure there are lubrication fittings for all bearings, and that the fittings are accessible.

7. Maker's Reputation. Make certain that you are dealing with a responsible source of supply, one whose contributions to industry have stood the test of time, and whose sales and service policy will withstand the closest scrutiny for now more than ever before, the success or failure of any operation is closely allied with the success or failure of those companies from whom your equipment is purchased.

II. Correct Truck Use

Floor trucks are built to be pushed, but we still find many truckers turning their backs to the load and pulling. Aside from the danger of load shifting or falling, and catching a trucker unaware, there is far more danger of undue strain on muscles. Pulling trucks, particularly, non-tilt platform type, often causes injury to the back of the trucker's legs, particularly with the truck having a low platform.

I would like to reveal an actual experience by a well-known producer of platform trucks. In an effort to get truckers to push the trucks instead of pulling them, this producer had a sign put on the frame of his truck: "Push—Don't Pull." When delivery was made of a fleet of these trucks, the customer wrote the manufacturer, stating that he would have to return the fleet because they were unsatisfactory and the men could not use them. The men couldn't use the trucks because they wished to obey the stencil instruction yet had always been in the habit of pulling trucks. This difficulty was settled very quickly; he simply told them, "Go ahead and pull them if they desired." If a man had a stalled automobile, however, you would find him out behind trying to push it, not up in front trying to pull it.

III. Overloading

One of the big problems in the use of industrial floor trucks has been to educate the user not to overload equipment and to purchase units designed to handle the load capacities involved. Today, the Caster and Floor Truck Manufacturers' Association is in the process of publishing standards on trucks that will give actual load ratings for the various trucks designed for various purposes. It is important that we do everything possible to educate the trucker that the unit he is using is designed to carry so much weight and no more.

Here we must keep in mind that shifting of trucks around through various departments in factories, often times puts a 500-lb. capacity unit in operation where the loads have suddenly become 1500 or 2000 lbs.

We repeat, the proper tool, and proper truck should always be selected for the specific job to be done. You wouldn't use a pipe wrench to change a tire on your car. You would get a lug wrench designed for this specific operation.

IV. Correct Load Positioning

Trucks should not be loaded so high that the operator is unable to view the aisle or area in which the truck is being operated. Finger controlled warning bells of the bicycle type are put on trucks by some firms with bad aisle conditions. Important, then, is to load the truck properly so that there is no danger of articles falling off the truck and causing damage to the equipment and to the material being handled.

V. Operating Conditions

When we have any type of material-handling problem, whether we use hand operated equipment or power operated equipment, we must consider the aisles in the plant, the doors, the elevator levels, etc., long before purchasing the equipment to be sure that the equipment can operate efficiently and satisfactorily. There were times when companies purchased fleets of floor trucks, moved them into their plants and then found they wouldn't go through certain doors, or perform up and down the aisles where they were intended to be used. When this happens, it takes a bit of explaining to top management.

VI. Safety Color

In many operations, floor trucks are used in dark warehouses or other areas where visibility is not the best. Therefore, such equipment should be painted a brilliant and conspicuous color. I believe that most producers today of such equipment recognize this fact and finish their units in a light or readily noticeable paint.

VII. Brakes

Brakes are recommended as a safety precaution in loading heavy loads on either two or four wheel industrial trucks. The types available on four wheels trucks can also be utilized as parking brakes when the truck must be stopped on a ramp or uneven surface. Safety brakes are essential on two wheel trucks where ramps are involved and loads are heavy to prevent the truck from running

—To page 62

SAFETY GOGGLES | SAFETY SPECTACLES

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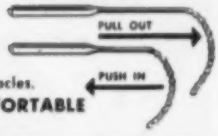

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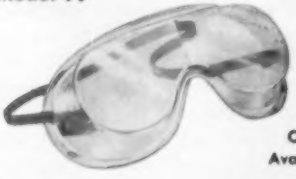

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"Beam of Silence" May Check Transformer Noise

A "beam of silence" may be the answer to the transformer noise problem, the Winter General Meeting of the American Institute of Electrical Engineers in New York was told.

Cancellation of transformer noise is accomplished by injecting an equal and opposite noise into the troublesome area, W. B. Conover and R. J. Ringlee, General Electric Company, Pittsfield, Mass., reported. This newly developed method "promises to be by far the most economical and satisfactory solution for noise problems where a limited area only is involved."

Transformer noise, it was pointed out, "has harassed electric power companies and transformer manufacturers for the last decade," necessitating corrective measures after the transformer is in service. Two solutions are being sought: reduction of noise in the design, and corrective measures in the field.

"Recent tests have demonstrated the practicability of projecting a 'beam of silence' through the complex sound field which surrounds a transformer," the speakers said. "Although at the present stage of development, the beam is limited to a width of about 30 degrees, this is sufficient to eliminate complaints in some installations. The equipment required to do this consists of from one to four loudspeakers, a source of a fraction of a watt of electrical power containing the harmonics of noise to be eliminated, and a means of adjusting the phase and amplitude of each harmonic. The cost of the equipment is a small fraction of the cost of conventional sound barriers."

In first tests of sound cancellation of a 15,000 KVA transformer located at a substation in a flat open field, the engineers reported that "The audible effect of cancellation was astonishing. Once the adjustment had been made, the transformer noise could be turned off and on at will, merely by switching the loudspeaker on and off."

Their tests showed that by sound cancellation it is possible to reduce transformer noise in a given direction by six decibels or more over a long radial distance, throughout angles up to about 35 degrees; at a given point noise reductions averaging about 20 decibels are easily obtainable; the angular position of the beam of silence may be changed without altering the geometry of the setup, by making adjustments in the magnitude and phase of the loud speaker excitation; the use of one or two loud speakers in a given direction may result in increase of noise in some other direction, but if this is intolerable a directional source of sound may be used to effect the desired cancellation without altering the original field elsewhere.

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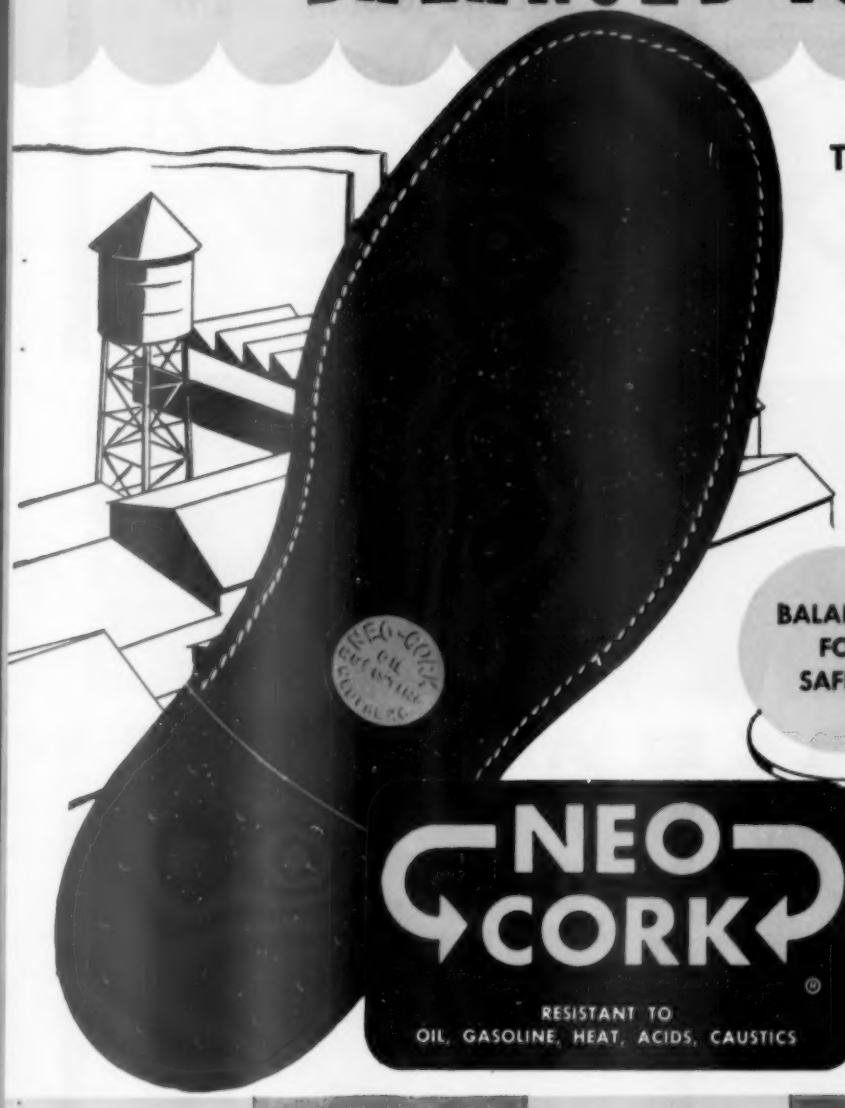

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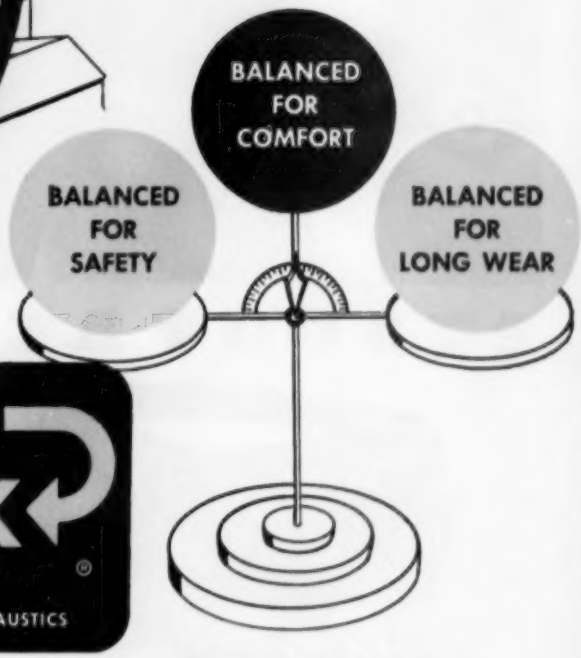

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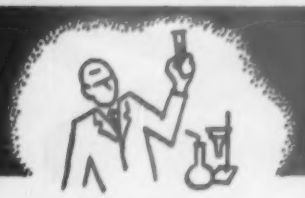

Abstracts of current literature on Industrial Hygiene, Medicine, and Nursing

BY F. A. VAN ATTA
Industrial Department, NSC

Sulfur Recovery

Refinery Sulfur Recovery Aids Air Pollution Control, by George E. Smalley and James W. Klohr. Presented at the First International Congress on Air Pollution of the American Society of Mechanical Engineers, New York, March 2, 1955.

WITH THE INCREASING necessity to process sour or sulfur containing crude oils, the amount of hydrogen sulfide released from petroleum refineries has been continuously increasing. The sulfur content of the sour crudes now used may run to five per cent or more by weight. Since hydrogen sulfide can commonly not be released to the atmosphere, the hydrogen sulfide containing off-gases are normally burned to sulfur dioxide in a flare stack or in a boiler before being released to the atmosphere. As the amount of sulfur produced has been increasing, it becomes too large to permit burning to SO_2 and refineries are beginning to install plants to convert the hydrogen sulfide to elemental sulfur.

By the end of 1955, approximately 1,000 tons per day of sulfur will be recovered in the United States at petroleum refineries. This will represent a reduction of 2,000 tons per day of sulfur dioxide which would otherwise be released to the atmosphere. In the Los Angeles area, they are already recovering 180 tons of sulfur per day.

The process by which hydrogen sulfide is converted to sulfur is a simple burning of the hydrogen sulfide with a limited supply of air so that only one-third of it is burned and the sulfur dioxide formed then reacts with the remainder of the hydrogen sulfide to produce free sulfur. The gases are burned in a furnace and then the hydrogen sulfide-sulfur dioxide mixture is passed over a bed of activated bauxite catalyst in one or more stages, condensing and removing the sulfur formed between stages.

When the process is operating properly, there is a small amount of residual hydrogen sulfide and other compounds which are passed to a gas-fired incinerator and emitted to the atmosphere from a stack.

Heart Disease

Physical Activity and Arteriosclerotic Heart Disease, by Percy Stocks, M.D. Public Health Reports 70:243-244 (February, 1955).

RECENT STATISTICAL STUDIES have suggested a possible association between physical activity and arteriosclerotic heart disease. A rise in death rates for arteriosclerotic heart disease has accompanied the increased use of automobiles and particularly among people who use cars most and correspondingly walk least.

Among those in the easiest social conditions, heart disease tends to express itself as acute coronary artery disease or angina, whereas among those whose occupations involve hard physical work, heart disease tends to be in the form of myocardial degeneration.

This has been tested among the deaths of two and a half million men dying between 45 and 64 and at each age period the coronary disease rate was about twice as great for persons in physically light occupations as for those in the heavy occupations.

For other heart and circulatory diseases, there was no important difference between the physical activity groups.

Most recently, a study of mortality experience of Cambridge University students indicates that the group who took an active part in sports possibly have a lower percentage of heart disease than do those who took no part in sports.

Britain's Fight on Air Pollution

Air Pollution—The Growth of Public Opinion, by Hugh E. C. Beaver. Paper presented at the First International Congress on Air Pollution of the American Society of Mechanical Engineers, New York, March 1, 1955.

THE STORY of the campaign against air pollution in England goes back to about 700 years and for most of this period it has been smoke and soot which have been violently criticized and attacked but for generation after generation nothing was accomplished.

It was just 700 years ago that the Queen of England moved out of London because of the insufferable smoke nuisance and 300 years later that the brewers of Westminster offered to use wood instead of coal for their furnaces because of Queen Elizabeth's allergy to coal smoke. It was also during the reign of Queen Elizabeth that the use of coal of low volatile material content and of smokeless briquettes was first proposed.

The first smoke nuisance committee was organized in Manchester in 1801 and there have been smoke nuisance committees operating almost continuously since. In spite of all this and the repeated acts of Parliament to make the production of excessive smoke illegal, the people of England were not really aroused to do anything

—To page 116

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Industry's Pack Mules

—*From page 54*

away from the operator and causing serious injury to other operators and damage to merchandise being handled. It has always seemed to me that users of industrial floor trucks should demand safety brakes on all their units for it would eliminate many serious merchandise damage claims and accidents to operators and other personnel.

VIII. Safety Regulations

Rules of operations of industrial floor trucks should be established as part of the over-all safety regulations for the entire operation. It is therefore essential that such problems as overloading, etc., be brought out definitely in the safety regulations and consistently enforced.

IX. Maintenance

The average floor truck requires very little maintenance but it should be inspected periodically and loose bolts tightened, splintered handles replaced and units periodically lubricated. Standardization of these products in the past few years makes available adequate replacement parts at small cost to keep your equipment in top condition very economically. The spilling of one load and subsequent damaging of merchandise would undoubtedly pay for the entire maintenance program for one year. Injury to an operator and subsequent costs along would also, do likewise.

X. Training

Valuable aid is provided by training programs for the benefit of everyone in the plant, operators and non-operators of handling equipment alike.

The plant itself should be closely scrutinized to find and compensate for any unsafe conditions. This includes floors, ramps, obstructions, lighting, doorways, etc. Take time to show the man how to use the equipment, tell him what the equipment is for, and be sure he understands thoroughly.

We have witnessed in the last few years a development of powered equipment for use in materials-handling. Many people have felt that these developments would outmode the two and four wheel hand truck as units for horizontal movement of materials, and for a time it appeared that their thinking was well founded.

As the field of activity for such power units expanded, many problems developed that have augmented the use of floor trucks. Many factors have been responsible for this, not the least of which has been the basic fact that 72 per cent of all industrial buildings are over 25 years old and of these, about 53 per cent are over 35 years old and of the latter about 50 per cent are over 45 years old. Such old buildings in most cases, do not lend themselves to present day straight line production

—*To page 84*

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SAFETY FILMS

For further information on publications or films listed here, write Nancy Lou Blitzen, Film Consultant, Membership Service Bureau, National Safety Council

Public Utilities

Add Them All Up (35mm sound slidefilm) black & white. 15 minutes. Production date, 1948.

This filmstrip and record gives a summary and analysis of fatal accidents in the gas industry from 1938 through 1947. It shows where many of the accidents in manufactured gas plants occurred and also the steps taken by the industry to prevent recurrence of these accidents. In addition to specific safe practices in gas production, the film presents the reasons for the accidents and fatalities in the industry. Sponsored by the American Gas Association.

Prints are available for purchase and loan from the American Gas Association, 420 Lexington Avenue, New York 17.

Supervisor Training

Let's Talk Safety Series (35mm sound slidefilm) b&w. Production date, 1954.

These five filmstrips and records were sponsored by American Gas and Electric Service Corp. to train foremen on cause and effects of accidents. Each film presents a particular situation in which poor supervision or a personality factor caused either an accident or put the worker in an unsafe position. The first film in the series even presents traffic safety. Although the series was created primarily for the utility companies, the discussion factors are applicable to most industries.

Prints are available for purchase and preview from the Vocafilm Corporation, 369 Lexington Ave., New York 17.

1. It Was Like This (4½ min.)
2. Wise Guy (3½ min.)
3. And Be Careful (3½ min.)
4. Now or Safely (3 min.)
5. Do Exactly as I say (3½ min.)

Rehabilitation

Everybody's Handicapped (16mm sound motion) black and white. 18 minutes. Production date, 1954. TV o/k.

A film for employers showing how handicapped workers can give, in many cases, exceptional job performance. It also illustrates that physical limitations don't necessarily mean lack of efficiency, absenteeism, and higher accident rates. In fact, it shows that the opposite is more often true. Produced by the National Film Board of Canada.

Prints are available for purchase from McGraw-Hill Book Co., Inc., Text-Film Department, 330 West 42nd St., New York 36. Prints may be rented for television use from Sterling Television Co., Inc., 205 East 43rd St., New York.

The Rehabilitation Story (16mm sound motion) black & white or color. 30 minutes. Production date, 1954.

Showing the effect of disability on personal and vocational efficiency, this film is designed to promote interest in the public to give active support of vocational rehabilitation programs in their state. The film tells how one program is run and it follows the process through counseling, treatment, vocational training, and job placement. For industrial and general adult audiences.

Prints are available for purchase and rental from the Virginia State Department of Education, Film Production Service, Richmond 16, Va.

Railroads

Challenge for Tomorrow (16mm sound motion) color. 27 minutes. Production date, 1955.

This is a colorful documentary film that takes the viewer behind the scenes of the railroad world. With a special emphasis on safety, the story is told how in a changing world a railroad accepts and meets the challenge of modern transportation needs. Sponsored by the Atchison, Topeka and Santa Fe Railway Company.

Prints are available from Atchison, Topeka and Santa Fe Railway Company, Public Relations Department, Film Bureau, 316 Railway Exchange, 80 East Jackson Blvd., Chicago 4, for loan.

The quarterly Supplements to the *National Directory of Safety Films*, 1954 issue, are still available. Single copies will be sent free of charge. The 1954 issue of the *Directory* is also available for purchase. Single copies sell for 75c and include the quarterly Supplements.

Atomic Projects

Protecting the Atomic Worker (16mm sound motion) black & white. 12 minutes. Production date, 1954.

Shows the many safeguards employed in atomic research plants that protect the lives and health of the men and women who work with dangerous radioactive materials. Equipment shown includes guards, protective clothing and mechanical devices which keep the worker away from the material being handled.

Prints may be obtained for rental from the University of Texas, Office of Visual Instruction Bureau, Division of University Extension, Austin 14, Texas.

Logging

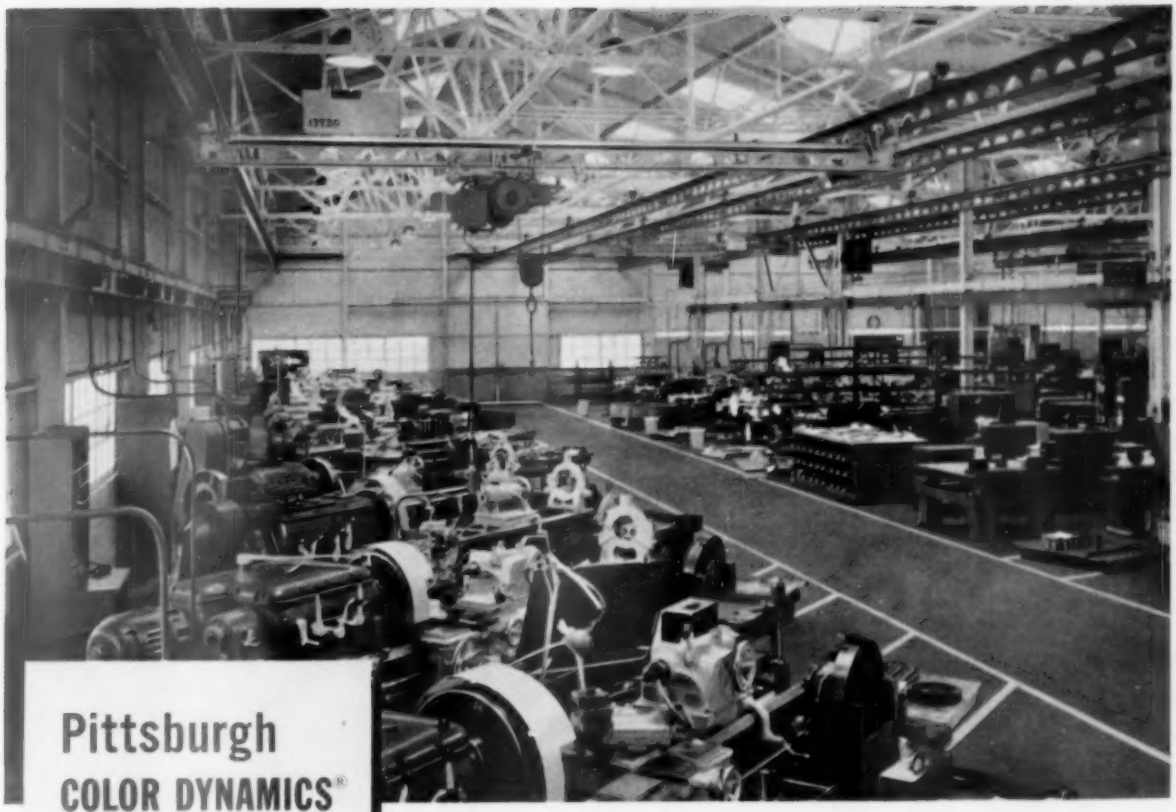
The Small Sawmill (16mm sound motion) color. 20 minutes. Production date, 1954. TV o/k.

Designed to stimulate interest of small sawmill owners in more efficient production, better quality, and safety. The story tells of the son of such an owner turning an inefficient, dilapidated, unproductive, unsafe sawmill into just the opposite. He is started on this project when his father has had a bad accident and is sent to the hospital. He receives help from the Forest Service and when his father returns, he finds his operation very safe and extremely productive.

Prints are available for loan and television from the Forest Service, U. S. Department of Agriculture, Washington 25, D. C.

Man (rushing into a store): "I want a mouse trap. And please hurry. I have to catch a bus."

Clerk: "I'm sorry, sir, they don't come that large."



Pittsburgh COLOR DYNAMICS®

Helps Employees See Their Work Better!

Modern system of painting improves efficiency and morale by providing better lighted and more cheerful work areas in California machine shop of Westinghouse Corporation

HOW management and workers benefit from the use of Pittsburgh COLOR DYNAMICS is demonstrated daily in the machine shop of the western headquarters plant of the Westinghouse Electric Corporation at Sunnyvale, California.

This huge structure of steel and reinforced concrete was painted according to the principles of COLOR DYNAMICS to increase efficiency and provide cheerful surroundings.

Interior walls and ceilings were painted to raise the light level so that machinists can read micrometer markings easily. Stationary parts of machine tools were painted restful Vista Green and working parts Focal Ivory. Levers were painted Focal Yellow and electric controls, Focal Orange.

By reducing the effort needed to differentiate between machine, materials and controls the operator is able to focus his attention better on his task. Eye strain, nervous tension and physical fatigue are lessened.

Cranes, overhead conveyors and traffic lanes were painted with safety colors to reduce danger of accidents.

How successfully such purposeful use of color has contributed to productive efficiency and employee morale is summarized in this comment of G. F. Gayer, Plant Manager:

"We are so convinced that COLOR DYNAMICS has bettered production and employee relations in our machine shop that we are extending this method of painting to our other buildings. We want our other workers to benefit from such improved environment. Pittsburgh is to be complimented on the contribution to industrial planning its modern painting system is making."

This Westinghouse machine shop is only one of thousands of plants all over the country in which production has been improved with COLOR DYNAMICS. Why not try it in your plant next time you paint—and see what a difference it makes.

You Can Have an Engineered Color Study of Your Plant—FREE!

● We'll be glad to mail you a free copy of our illustrated booklet on COLOR DYNAMICS for industry. It explains clearly the principles of this modern method and how to apply them. Better still, we'll gladly submit an engineered color study of your plant, or any part of it, without cost or obligation. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have a representative see you. Or mail coupon at right.

Send for a Copy of This FREE Book

Pittsburgh Plate Glass Company, Paint Div., Department NSM-45, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your booklet "COLOR DYNAMICS."

☐ Please have your representative call for a COLOR DYNAMICS survey without obligation on our part.

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Portrait by Fabian Bachrach

Bell Aircraft has 13,000 payroll savers

"From every point of view, the purchase of U. S. Savings Bonds contributes to the soundness of our economy and to the individual security of our citizens. I am proud that at Bell Aircraft our employees are helping to strengthen the national economy and their own future security through the Payroll Savings Plan.

"In a recent campaign Bell employees achieved a record of nearly 99% participation in the Payroll Savings Plan, bringing to 13,000 the total number of our employees who are saving systematically through the regular purchase of Savings Bonds."

LARRY BELL, *President Bell Aircraft Corporation*

If your company does not have the Payroll Savings Plan, or if you have the Plan and employee participation is less than 50%—get in touch with Savings Bond Division, U. S. Treasury Department, Washington, D. C. Your State Director, U. S. Treasury Department, will be glad to help you install a plan or show you how easy it is to build employee participation in your present plan.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

NATIONAL SAFETY COUNCIL

Floor, Feet and Wheels

—From page 27

edges crumble under traffic and uniform depth of patching is desirable.

Mastic compounds without coarse aggregate are excellent for checking wear in its early stages. They give a hard yet resilient patch.

Painting. Keeping a concrete floor painted is often troublesome. Moisture in the slab, reaction of alkali in the concrete with the paint, and too slick a surface may prevent a good bond. Etching with a 10 per cent solution of muriatic acid, thoroughly rinsed and dried before painting is recommended.

For painting concrete floors, particularly below grade, a rubber-based resin emulsion paint is usually recommended. It is highly resistant to dampness, alkalis and other corrosives.

Re-surfacing. Emulsified asphalt is often applied directly over the worn floor in dry areas. For wet areas, where there is no grease or extreme heat, a hot acid resisting mastic may be used. These coatings can be applied without surface preparation.

Resin synthetic latex material can also be used over rutted and cracked concrete floors. Better consult the manufacturer about the exposure.

Wood Block

Wood block floors stand up well under heavy traffic and are comfortable underfoot. Their life can be prolonged by systematic care.

Sometimes the edges wear down, giving a cobblestone surface. Irregular blocks are unsafe and slow down trucking. Worn blocks can be removed and replaced.

Blocks that work loose can be removed, cleaned and replaced. Mopping a cold seal into the surface seals it against moisture, buckling and working loose.

Hardwood

Trying to keep a hardwood plank floor in good condition under heavy traffic is fighting a losing battle. But for pedestrian use and very light and infrequent wheel traffic it will give satisfactory service.

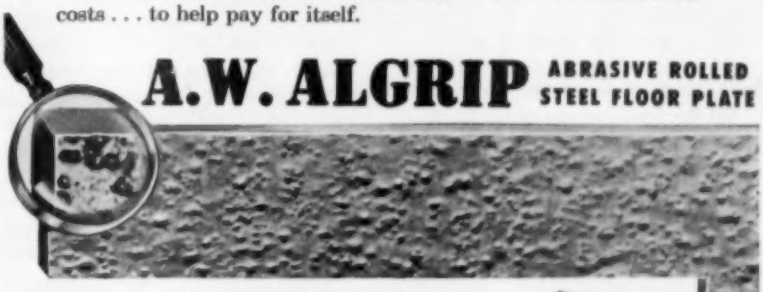
The INDUSTRIAL WORKER knows

—and he knows at close range—that an accident means serious personal tragedy to the worker as well as financial and production problems to the plant.

It's a fortunate worker who is employed by one of the progressive firms which have taken the practical step that *assures* safety against slipping accidents . . . by installing ALGRIP . . . the world's only Abrasive Rolled Steel Floor Plate. Oily, wet or greasy—level or on slope—the ALGRIP floor is foot-safe for the worker . . . safe against skidding for material-handling equipment . . . because ALGRIP's uniformly and deeply embedded abrasive keeps it safe . . . year in, year out.

ALGRIP maintains itself . . . cuts accidents . . . and insurance costs . . . to help pay for itself.

A.W. ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE



ALGRIP — *Approved for Safety by Underwriters' Laboratories.*

ALAN WOOD STEEL COMPANY
Conshohocken, Pa.

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Name_____
Title_____
Company_____
Address_____
City_____ Zone_____ State_____

Other products: A.W. SUPER-DIAMOND Rolled Steel Floor Plate—Plates —Sheets—Strip—(Alloy and Special Grades)

Water is the enemy of all wood floors. A continual moist surface results in dry rot, warping and splintering. If wet cleaning methods are used the water should be picked up promptly.

Sealers. Oil or resin sealers protect the surface against wear and to some extent against moisture. All traces of oil or wax should be removed with a thinner before buffing or sanding and applying new coats. A regular schedule of resealing will keep floors from deteriorating.

Resilient Materials

Commonly used resilient materials are asphalt tile, rubber tile, linoleum and vinyl tile. Protective coatings are desirable for all these materials.

Water emulsion (self-polishing) waxes may be used safely on all of them. Solvent (paste or liquid) waxes may be used on linoleum or vinyl but they cause deterioration of asphalt and rubber.

While waxing is not absolutely necessary for vinyl tile, it improves the appearance and gives extra protection against scratches and abrasion.

Surface indentations. Resilient floors are susceptible to indentation from furniture and stationary equipment, particularly in warm weather and where there is prolonged exposure to sharp or heavy standing loads. Floor pads help to prevent indenting.

Selecting a Cleaner

While some areas may require special treatment, there are floor maintenance materials which meet a wide variety of industrial needs. Here are some essential pointers in choosing floor cleaners:

1. Neutral all-purpose cleaners are safe for all surfaces—concrete, wood, tile, oxychloride (magnesite) as well as asphalt, rubber, linoleum and vinyl. Use of all-purpose cleaners standardizes and simplifies over-all cleaning. Manufacturers state that these neutral cleaners do not require rinsing, cutting labor costs.

2. Use the cleaner at the correct concentration for light, medium or heavy soil loads.

3. It should be soluble in hot or cold, hard or soft water.

4. It should have good suspension properties—i.e., dust particles and solids are picked up from the floor, thrown into solution and held in suspension until the dirt-laden cleaning solution is squeegeed, vacuumed or otherwise picked up from the floor.

5. It should clean without excessive scrubbing. A wrong cleaner can often roughen the surface in such a way as to make maintenance more difficult.

6. A non-alkaline cleaner is generally desirable. Use of strong alkali on concrete has a tendency to set up a crystalline expansion, causing the concrete to break up and crumble. It also has a deteriorating effect on asphalt tile.

7. Buy a trademarked product from a reputable firm. You can depend on its label "neutral."

Waxes

High-grade carnauba waxes, properly formulated and found slip-resistant by Underwriters' Laboratories tests and properly applied to a clean base will provide a good footing and preserve the floor finish.

Use of oil type dressings and other maintenance products that are incompatible with wax may soften the coating and create a slippery condition.

Self-Polishing Wax. Before application, the floor should be free from dirt, grease and old wax. Otherwise the new wax will be streaked and will not dry bright.

Old wax should be removed every three or four months. Wax removers which will do a thorough job of preparation and are safe for all floors are available.

Two coats are needed to get a bright and durable finish, allowing at least 30 minutes between coats.

Buffing is not necessary but it will increase the luster. Polishing may be done with a weighted brush or with a buffing pad on a floor machine.

Buffing waxes. These waxes are satisfactory for wood and linoleum but should not be used on rubber or asphalt tile. Two coats should be applied, allowing at least 20 minutes between coats. Polishing is best done by machine.

While self-polishing waxes have a higher coefficient of friction than the buffing type, the latter can be used safely for many types of floors if applied properly.

A waxed surface should be swept daily. Luster may be renewed and many scuff marks removed by occasional buffing. This will save rewaxing.

At longer intervals the waxed surface may be damp-mopped with a wax cleaner. It should not soften the wax film or decrease frictional resistance. A non-flammable type avoids the hazards of fire in use or spontaneous ignition of mops in storage. A pleasant aroma is not to be despised, either.

And if you have a tough problem—either in keeping the floors clean or in preventing slipping hazards, put it up to the manufacturers of floor maintenance products.

"Slow Down" Is Theme Of Summer Program

Slow Down and Live is a nation-wide educational program sponsored by the National Conference of State Safety Coordinators. Carried on during June, July and August, it is aimed at the reduction of traffic accidents through reduction of highway speeds and better observance of related traffic laws.

The 1955 *Slow Down and Live* program, which will make use of leaflets, posters, outdoor advertising, radio, TV, and other media, again will stress the need for avoiding hurry. The program is based on the fact that drivers in a hurry tend not only to drive too fast for conditions, but to commit other traffic violations such as passing improperly, following too closely and failing to yield the right of way.

The National Safety Council commends the National Conference of State Safety Coordinators on the *Slow Down and Live* program and urges support by all organizations and individuals interested in the reduction of traffic accidents. The Council's Operation Safety programs during the summer months will be fully coordinated with *Slow Down and Live* in recognition of the value and importance of the program.

Traffic accidents never prove who is right—only who is left.

WHAT HAPPENS NEXT?

If management has been wise, a fire tragedy will be stopped before it starts...if not, in 20 minutes extensive destruction and total loss could readily be the result.

First-rate fire protection is essential to the continued success of any business. With C-O-TWO Smoke or Heat Fire Detecting Systems, plus C-O-TWO High Pressure or Low Pressure Carbon Dioxide Type Fire Extinguishing Systems, as well as PYRENE Air Foam Type Fire Extinguishing Systems for specific outdoor locations, your plant can have fast, positive round-the-clock fire watchman service simultaneously at each fire hazard point . . . a fire tragedy is stopped before it starts.

Furthermore, there is a personal sense of responsibility inherent with PYRENE—C-O-TWO Fire Protection Engineers that assures you of fully adequate firesafety . . . a definite plus in your behalf. Whether it's fire detecting or fire extinguishing . . . portables or built-in systems . . . PYRENE—C-O-TWO means top quality backed by experienced engineering that results in operating superiority for you at all times.

Act now . . . don't take unnecessary chances with your investment any longer . . . the extensive experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Remember . . . a plant-wide fire protection survey skillfully executed today could be the means for greater profits tomorrow.

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COMPLETE FIRE PROTECTION

portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

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Safety Leaders

(From page 14)

Pillsbury Mills, Nashville.
—Lima, Ohio.
—Culver City, Calif.
—Oven Ready Plant, Los Angeles.
General Mills, Flour Mill, El Reno, Okla.
Igleheart Bros., Associated Products Div., General Foods Corp., Pendleton, Ore.
Cooperative Mills, Statesville, N. C.
International Milling Co., Formula Feed Plant, New Ulm, Minn.
—Ponca City, Okla.
Spreckels Sugar Co., District No. 1
National Biscuit Co., Cheney Mill.

DIVISION II

Group A
Kellogg Co., Omaha
Group B
Kellogg Co., San Leandro, Calif.
General Foods Corp., Maxwell House Div., San Leandro, Calif.
The Glidden Co., Indianapolis
Beech Nut Packing Co., Plant No. 2.
General Mills, Oat Flour Mill, Minneapolis.
I. J. Grass Noodle Co.
General Mills, Food Packaging Plant, Louisville.
The Quaker Oats Co., Depew, N. Y.
Peter Paul, Inc., Philadelphia Div.

DIVISION III

Group A
Carnation Co., Southern District.
Group B
Prices Creameries, Inc., El Paso.
Group C
The Borden Co., North East Div., Troy, N. Y.
Southern Dairies, Inc., Richmond, Va.
—Christiansburg, Va.
Kraft Foods Co. of Wisconsin, Hutchinson, Minn.
—Antigo, Wis.
Kraft Foods Co., Stockton, Ill.
Kraft Foods Co. of Wisconsin, Hartford, Wis.

DIVISION IV

Group A
H. J. Heinz Co., Holland, Mich.
Group B
H. J. Heinz Co., Chambersburg, Pa.
General Foods, Limited, Montreal Plant.
Group C
Libby McNeill & Libby, Pauwela, Maui, Hawaii.
Walla Walla, Wash.
—Leipsic, Ohio.
—Oakland, Calif.
H. J. Heinz Co., Fremont, Ohio.
California Packing Corp., Smithfield, Wash., Plant No 138.

DIVISION VI

Group A
General Cigar Co., Division St., Kingston, Pa.
—Allentown, Pa.
—Huntington, W. Va.
Group B
General Cigar Co., Mt. Carmel, Pa.
Bayuk Cigars, Inc., 11th St. Plant.
—Lancaster Sweat Dept.

DIVISION VII

Group A
National Distillers Products Corp., Louisville Div.
Schenley Distillers, Inc., Frankfort, Ky.
Group B
Brown-Forman Distillers Corp., Bottling Div., Louisville.
—Early Times Div., Shively, Ky.
National Distillers Products Corp., Peoria, Div.
—Pennsylvania Div.
Schenley Distillers, Inc., Lexington, Ky.
—Bardstown, Ky.
Joseph E. Seagram & Sons, Milan, Ind.
The Calvert Distilling Co., Lawrenceburg, Ky.

DIVISION VIII

C. Schmidt & Sons, Philadelphia.

DIVISION IX

Group A
National Biscuit Co., Portland, Ore.
Group B
National Biscuit Co., Los Angeles Bakery.
—Bread Bakery, Pittsburgh, Pa.
Interstate Bakeries Corp., Kansas City, Mo.
Group C
Interstate Bakeries Corp., Long Beach, Calif.
National Biscuit Co., Cone Bakery, Dayton, Ohio.
—Bread Bakery, Rochester, N. Y.
—Oakland, Calif.
—Holland Rusk Bakery, Holland, Mich.
—Bread Bakery, San Antonio, Tex.
—Niagara Falls, N. Y.
—Battle Creek, Mich.

FLUID MILK DIVISION

Group A
St. Louis Dairy Co., St. Louis, Mo.
Group B
Oscar Ewing, Inc., Louisville.
Group C
The Borden Co., East Detroit Branch.
—Michigan Milk Div., Owosso Branch and Plant.
—Ebling Co., Holden Plant.
Ebling Creamery, Holden Plant.
The Borden Co., Grand Rapids.
Sheffield Farms Co., Norwich Plant.
—No. New York District.
—Hobart District.
—Pennsylvania District.
The Borden Co., Marion, Ohio.
—Mansfield, Ohio.
Borden's Beck Dairy, Middletown, Ohio.

GLASS AND CERAMICS

PLATE GLASS
Pittsburgh Plate Glass Co., Works No. 6, Ford City, Pa.

GLASS PRODUCTS
Group A
Owens-Illinois Glass Co., Charleston, W. Va.
Group B
Owens-Illinois Glass Co., Clarion, Pa.

CERAMICS
Group A
American Radiator and Standard Sanitary Corp., New Orleans Plant.
Group B
American Radiator and Standard Sanitary Corp., San Pablo Plant.

MACHINE AND MOLD SHOPS
Owens-Illinois Glass Co., Oakland Central Mold Shop. (Certificate)

MARINE

Shipbuilding and Repair—Govt.
Group A
Naval Repair Facility, San Diego.
Group B
U. S. Coast Guard Yard, Curtis Bay, Baltimore. (Certificate)

Shipbuilding and Repair—Private
Heavy Yards
Electric Boat Div., General Dynamics Corp., Groton, Conn.

Light Yards
Dravo Corp., Wilmington Plant.
The Pittsburgh & Conneaut Dock Co., Conneaut, Ohio.
Ashland Oil and Refining Co., River Repair Terminal.

Harbor Equipment Div.
Group A
United States Steel Corp., River Transportation, Clairton, Pa.
Group B
Corps of Engineers, Southwestern Div.

Stevedoring—Bulk Cargo
The Pittsburgh & Conneaut Dock Co., Conneaut, Ohio.
The Erie Dock Co., Cleveland and Randall Dock, Cleveland, Ohio.
P & E Coal Dock Co., Erie, Pa.

Stevedoring—General Cargo
Kauai Consolidated Terminals Ltd., Kauai, T. H. (Certificate)

Cargo and Passenger Vessels—Government
Class A
Military Sea Transportation Service, Pacific Area, Dept. of the Navy (Certificate)

Cargo and Passenger Vessels Div.—Private
Ocean and Coastwise—Seas Shipping Co., New York.
Inland Waterways—Wyandotte Transportation Co., Wyandotte, Mich. (Certificate)
Tankers Division
Ocean and Coastwise—The Pure Oil Co., Chicago.
Inland—Sun Oil Co., Marcus Hook, Pa. (Certificate)

—To page 72

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Modernize your shop — save money — with new

Type 1300 KIMWIPES!

You'll be money ahead when you switch to Type 1300 Kimwipes. They're the modern new disposable wipers that actually replace old-fashioned cloth and waste wiping material and cost four to ten times less!

New Kimwipes 1300 are soft. Strong. Absorbent. A full 12" x 18" in size, they hold up to 8 times their own weight in liquids. They're non-abrasive, too. There's no holdover of metal chips or other infectious material that may cause dermatitis and loss of man hours. Type 1300 Kimwipes are absolutely clean to start with, and are disposed of after use. Ask your salesman for samples. And remember, there are two other kinds of Kimwipes you can choose from: Type 900-S (optical wipers) and Type 900-L (regular wipers). Save money. Order today!

Kimberly Clark
Kimwipes

Kimberly-Clark Corporation • Neenah, Wisconsin

Safety Leaders

(From page 70)

THE PAPER INDUSTRY SAFETY CONTEST

PAPER & PULP MILLS

Group A
The Flintkote Co., Pioneer Div., Los Angeles.

Group B
Crossett Paper Mills, Crossett, Ark.

Group C
Manitoba Paper Co., Ltd., Pine Falls, Man.
The Crystal Tissue Co., Middletown, Ohio.
National Vulcanized Fibre Co., Yorklyn, Del.

Group D
Fraser Companies, Ltd., Newcastle, N. B.
Price Bros. & Co., Ltd., Jonquiere, P. Q.
Certanteed Products Corp., Savannah, Ga.
—East St. Louis, Ill.
California Container Corp., 57th St., Mill Div.
Barrett Div., Allied Chemical & Dye Corp., Elizabeth, N. J.
The Bartgis Bros. Co., Board Div., Ilchester, Md.
United States Gypsum Co., Oakmont, Pa.
O. B. Andrews Co., Chattanooga, Mill Div.

Group E
Lloyd A. Fry Roofing Co., Portland, Ore.
—Compton, Calif.
—Brookville, Ind.
—Jacksonville, Fla.
—N. Kansas City, Mo.
—Memphis, Tenn.
Volney Felt Mills, Div. Lloyd A. Fry Roofing Co., Fulton, N. Y.
Riegel Paper Corp., Hughesville Mill, Riegelsville, N. J.
United States Gypsum Co., N. Kansas City, Mo.
The Flintkote Co., Mt. Carmel, Ill.
Kimberly Clark Co. of Canada, Ltd., Kapuskasing, Ont.
Container Corp. of America, Wilmington, Del.
Johns-Manville Corp., Tilton Plant.
Munroe Falls Paper Co., Munroe Falls, Ohio.
International Paper Co., Livermore Mill.
Amalgamated Roofing Mills, Div. The Logan-Long Co., Chicago.

PAPER BAGS GROUP, CONVERTING DIV.

St. Regis Paper Co. (Canada) Ltd., Vancouver, B. C.
St. Regis Paper Co., Multiwall Bag Div., Los Angeles.
Thilmany Pulp & Paper Co., Bagg Mill, Kaukauna, Wis.
Pillsbury Mills, Wellsburg, W. Va.

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O. B. Andrews, Chattanocga, Folding Carton & Container Div.
The Bartgis Bros. Co., Carton Div., Ilchester, Md.
Container Corp. of America, Rock Island, Ill.
—Manayunk, Folding Carton Div.

Group B
Container Corp. of America, Cleveland, Ohio.
O. B. Andrews Co., Knoxville, Tenn.
Container Corp. of America, Baltimore.
—Greensboro, N. C.
Gaylord Container Corp., Atlanta Plant.
National Container Corp. of Indiana, Aurora, Ind.
Gaylord Container Corp., Beaver Falls Plant.
Bay West Paper Co., Green Bay, Wis.
Mott Carton & Paper Co.
Hankins Container Co., Little Rock, Ark.

ROOFING PAPER GROUP, CONVERTING DIV.

The Rubberoid Co., Gloucester City, N. J.
Lloyd A. Fry Roofing Co., Detroit, Mich.
—Stroud, Okla.
Johns-Manville Corp., Los Angeles Plant.
Lloyd A. Fry Roofing Co., York, Pa.
—Robertson, Mo.
—San Leandro, Calif.

INSULATION AND BUILDING BOARD GROUP, CONVERTING DIV.

Abitibi Power & Paper Co., Ltd., Hardboard Mill, Sturgeon Falls, Ont.

SPECIALTIES GROUP, CONVERTING DIV.

Scott Paper Co., Sandusky, Ohio.
Lily Tulip Cup Corp., Chicago.
Line Material Co., Sherman, Tex.
Mid-West Wax Paper Co., Ft. Madison, Ia.
Lily Tulip Cup Corp., Monticello, Ind.

PULPWOOD LOGGING DIV.

Southern Advance Bag & Paper Co.

PETROLEUM

MFG. DEPT., ENTIRE CO.

Group A
Lago Oil & Transport Co., Ltd., Aruba, N.W.I.

Group B
Neches Butane Products Co., Port Neches, Tex.

MFG. DEPT., IND. PLANT

Group A
Esso Standard Oil Co., Bayonne Refinery.

Group B
Lion Oil Co., Chemical Div.

Group C
Lion Oil Co., El Dorado, Ark.

WHOLESALE MARKETING DEPT.

Group A
Continental Oil Co., Ponca City, Okla.

Group B
The Carter Oil Co., Tulsa.

RETAIL MARKET DEPT.
The Ohio Oil Co., Findlay, Ohio.

DRILLING DEPT.
Creole Petroleum Corp., Caracas, Venezuela.

Group B
Gulf Oil Corp., Ft. Worth Production Div.

PRODUCING DEPT.

Group A
Humble Oil & Refining Co., Houston.

Group B
Lone Star Producing Co., Dallas.

NATURAL GASOLINE DEPT.

Group A
Humble Oil & Refining Co., Houston.

Group B
General Petroleum Corp., Los Angeles.

OIL AND GAS PIPE LINE DEPT.

Group A
Shell Pipe Line Corp., Houston.

Group B
Keystone Pipe Line Co., Philadelphia.

EXPLORATION DEPT.
Pan American Production Co.

RESEARCH AND DEVELOPMENT DEPT.
Phillips Petroleum Co.

PRINTING AND PUBLISHING

Group A
The Lord Baltimore Press, Baltimore.

Group B
The United States Printing & Lithograph Co., St. Charles (Ill.) Div.

PUBLIC UTILITIES

COMBINATION GAS AND ELECTRIC DIV.

Group A
Consolidated Gas, Electric Light and Power Co. of Baltimore.

Group B
Central Illinois Light Co.

Group C
Interstate Power Co., Dubuque, Ia.

Group D
City Utilities of Springfield, Mo., Gas & Electric Depts.
Superior Water, Light & Power Co., Gas & Electric Div.

GAS DIV.

Group A
The Ohio Fuel Gas Co.

Group B
The Peoples Natural Gas Co.

Group C
Mystic Valley Gas Co., Malden, Mass.

Group D
Northampton Gas Light Co.
Lynchburg Gas Co., Lynchburg, W. Va.
Southwest Natural Gas Co., Shreveport, La.
Chattanooga Gas Co.
Lawrence Gas Co., Lawrence, Mass.

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Stonehouse SIGNS

FOR INDUSTRIAL ACCIDENT PREVENTION

Most people sometimes forget—and it's a dangerous oversight to forget Safety. "I forgot" is an all too common alibi for an accident.

STONEHOUSE SIGNS

To help workers *remember*, post Stonehouse Safety Slogans and Reminders signs. Just the few words on any of them help to promote safety.

The tendency to forget should not be overlooked—it's serious. Teach your workers to cultivate the practice of safety by reminding them to *remember* its blessings.

Have you our Catalog? 64 pages, in full color. It's free on request.

Stonehouse

SIGNS, inc. MANUFACTURERS • Stonehouse Bldg., 9th at Larimer

"Signs Since 1863"

Denver 4, Colorado

ACCIDENT PREVENTION • *steel* SIGNS IN STANDARD COLORS AND DESIGNS

Safety Leaders

(From page 72)

Water Gas & Sewage Treatment Dept., City of Duluth.
Gas Light Co. of Columbus, Ga.
The River Gas Co.

ELECTRIC DIV.

Group A
Texas Power & Light Co., Dallas.
Group B
Public Service Co. of Oklahoma, Tulsa
Group C
New England Power Co., Boston.
Group D
Maquoketa Valley Rural Electric Cooperative, Anamosa, Ia.
Black Hills Power & Light Co.
Quincy Electric Co., Quincy, Mass.
City of St. Louis, Power Plant Section, Dept. of Public Utilities.
Price Bros. & Co., Ltd., Kenogami Hydro-Electric.
Northern Berkshire Electric Co., North Adams, Mass.
Mississippi Valley Public Service Co., Winona, Minn.
Old Dominion Power Co., Lexington, Ky.
Northampton Electric Lighting Co.
Granite State Electric Co., Lebanon, N. H.

WATERWORKS DIV.

Superior Water, Light & Power Co., Water Div.

RUBBER

Division I
United States Rubber Co., Mishawaka Plant.
Division II
The Goodyear Tire & Rubber Co., Jackson, Mich.
Division III
The Goodyear Tire & Rubber Co., Akron Plant II.
Division IV
The Goodyear Tire & Rubber Co., New Bedford, Mass.
B. F. Goodrich Chemical Co., Port Neches, Tex.
United States Rubber Co., Port Neches Plant.
Goodyear Synthetic Rubber Corp., Houston, Tex.
Kentucky Synthetic Rubber Corp., Louisville.
Copolymer Corp., Rubber Plant, Baton Rouge.
Division V
B. F. Goodrich Co., Research Center.
The Firestone Tire & Rubber Co., Akron Synthetic Plant.
Firestone Tire & Rubber Co. of New Zealand, Christchurch, N. Z.
B. F. Goodrich Co., Reclaim Plant.
McCreary Tire and Rubber Co., Indiana, Pa.
United States Rubber Co., Manchester Plant.
B. F. Goodrich Co., Works Technical Laboratories.
The Firestone Tire & Rubber Co., Memphis Flotation Gear.
B. F. Goodrich Co., Du Bois Plant.
University of Akron Government Laboratories.
The Firestone Plastics Co., Pottstown, Pa.
United States Rubber Co., Burlington Plant.
U. S. Rubber Reclaiming Co., Cheektowaga Plant.
The Firestone Tire & Rubber Co., Memphis Xylos Plant.
Canadian Lastex Limited.
The Firestone Tire & Rubber Co., Akron Retread Shop.
The Lobl Manufacturing Co., Middleboro, Mass.

TEXTILE

DIVISION I
Group A
Tallassee Mills of Mt. Vernon Woodberry Mills, Tallassee, Ala.
Group B
Hanes Dye and Finishing Co., Winston-Salem, N. C.
Group C
Lea Fabrics, Inc., Newark, N. J.

DIVISION II
Group A
J. P. Stevens & Co., Cotton & Spun Fibres Div., Whitmire, S. C., Plant.
Group B
United States Rubber Co., Shelbyville Mills.
Group C
J. P. Stevens & Co., Synthetics Div., Queensboro, N. C.

TRANSIT

Division I
St. Louis, Mo., Public Service Co. (Certificate)
Division II
Transit Dept., New Orleans Public Service Inc. (Certificate)
Division III
American Industrial Transport, Inc., Oak Ridge, Tenn.

WOOD PRODUCTS

LOGGING DIV.
Group A
Weyerhaeuser Timber Co., Springfield Branch—Logging.
Group B
Dierks Forests, Inc., Dierks Div., Loggers, Dierks, Ark.

SAWMILLS DIV.
Group A
C. D. Johnson Lumber Co., Div. of Georgia Pacific, Toledo, Ore.
Group B
Dierks Forests, Inc., Wright City, Okla., Plant.
Group C
Collins-Macken Lumber Co., Chilliwack, B. C.
American Forest Products Corp., Sawmill, Lakeview, Ore.

PLYWOOD AND VENEER DIV.
Group A
Algoma Plywood & Veneer Div., United States Plywood Corp., Algoma, Wis.
Group B
General Plywood Corp., Tarboro, N. C.
The Mengel Co., Branch 2, Louisville.
—Furniture Plywood, Louisville.

FURNITURE DIV.

Brammer Manufacturing Co., Davenport, Ia.
Kroehler Manufacturing Co., Cleveland, Ohio.

WOOD PRESERVING DIV.
Group A
Koppers Co., Wood Preserving Div, Charleston, S. C.
—Wood Preserving Division, Montgomery, Ala.
Group B
Koppers Co., Wood Preserving Div., Denver.
—Wood Preserving Div., Alexandria, La.
Canada Creosoting Co., Limited, New Westminster Plant.

COOPERAGE DIV.

Brown-Forman Distillers Corp., Blue Grass Cooperage Co., Louisville.
Schenley Distillers, Inc., Louisville Cooperage Plant No. 2.
—Chess & Wymond, Louisville.
Jos. E. Seagram & Sons, Hunter-Wilson Distilling Co., Oil City, Pa.

RETAIL LUMBER YARDS DIV.

Weyerhaeuser Sales Co., St. Paul.
Weyerhaeuser Timber Co., Los Angeles Yard.

BOX MFG. & WOODWORKING DIV.
Group A
Curtis Companies, Clinton Div.
Group B
E. I. du Pont de Nemours & Co., Deering Junction Works.
American Excelsior Corp., Marinette Div.
Menominee Box & Lumber Co., Menominee, Mich.

WOOD SHINGLES DIV.

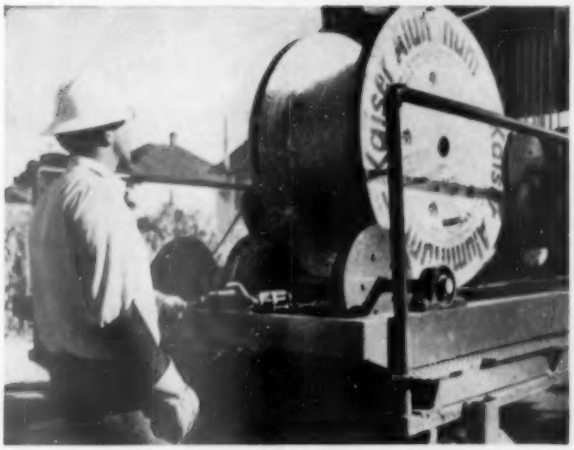
Flavelle Cedar, Ltd., Shingle Mill, Port Moody, B. C.

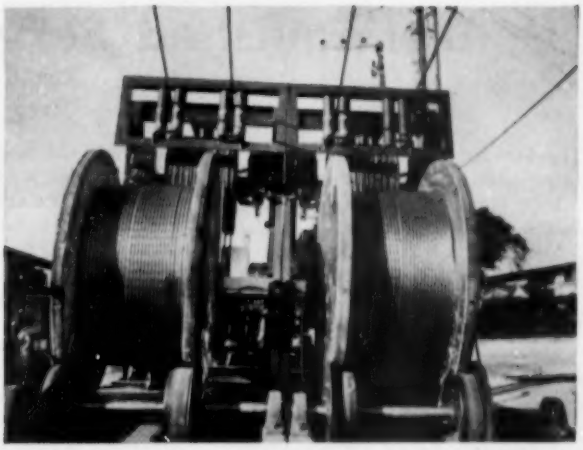
FORESTRY DIV.

U. S. Forest Service, Northeast Forest Experiment Station.
—Lake States Station.
—Pacific Northwest Forest and Range Experiment Station.
—Rocky Mountain Station.

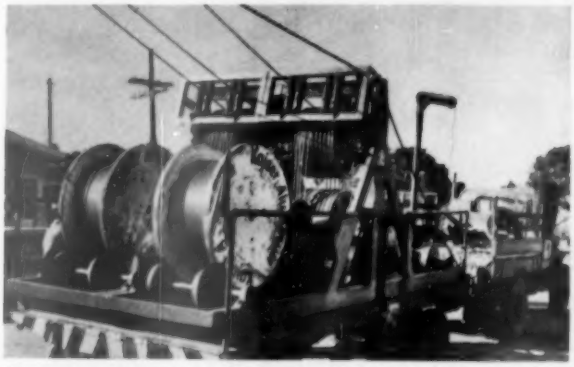
Emotional health expresses itself in the language of relationships. It is present, we can assume, wherever we see a human being happily and consistently going toward the possibilities and realities of his world rather than withdrawing from them.

—Bonardo W. Overstreet





Attendant regulates tension (left) by means of cranks. At right: Reels at each end of machine ride on flanged rubber-tired wheels.



Four pairs of grooved bull wheels (left) hold tension. Right: Tension is so uniform that conductors are tied in without sagging.

Wires Strung Under Tension

Advantages of stringing several transmission or distribution conductors under tension at the same time are so great that there is now a definite trend in that direction.

The first equipment of this kind to be used by Pacific Gas and Electric Co. was employed recently in stringing a 266,800-cir-mil, all-aluminum 22-kv line at Pacific Grove, Calif. The device, made by the Petersen Engineering Co. of Santa Clara, Calif., is shown in the accompanying photographs.

This particular machine strings up to 4 conductors under tension up to 477 MCM, and is known as Series 5000. Series 6000 takes conductors up to 1 million CM, and Series 7000 to take conductors to 2" diameter is under development. As may be seen, there are four sets of grooved drums or "bull" wheels 26 inches in diameter, around each of which there are four wraps of the wire to prevent slippage. Grooves are neoprene lined to prevent damage to the conductor and further to insure against any possible slippage. Vertical rubber rollers guide the wire on and off the bull wheels.

On the shaft of each of the bull wheels there is a smooth acting brake of the type used for emergency braking on heavy earth-moving equipment. A small flexible steel cable leads from each pair of these brakes to a crank on the bed of the machine, giving perfect control over braking of the bull wheels.

An interesting feature of the design is the manner in which the reels of cable are supported. Two shafts with flanged rubber-tired wheels are ajustable so that the rim of any sized cable reel rides on these rubber tires. A brake on each shaft of the same type as that used on the bull wheels permits the degree of retardation necessary to keep the conductor under tension between the reel and the first bull wheel.

After a few pulls, an interesting thing develops.

The braking system permits such nicety of control over total tension in the conductors and relative tension between conductors that it is possible to dead-end and tie in directly without any sagging operation, thus effecting a considerable saving in time. Primary purpose of the tension stringing is, of course, to keep the conductors out of hot 4-kv primary and other circuits below. Even though there is little possibility of contact with hot lines with tension stringing, nevertheless the machine is grounded as a safety precaution.

Those familiar with line construction predict that tension stringing will soon become general practice, even on new work where no other lines are involved.

Made by the makers of the World-Famous

PENGO EARTH AUGERS

PETERSEN

ENGINEERING COMPANY

Santa Clara, Calif.

Send Coupon for More Information!

PETERSEN ENGINEERING CO.

Santa Clara, California Dept. 8

Please send me more information on the new Pengo Tension Wire Stringer.

Name_____

Firm_____

Address_____

City_____ State_____

Distinguished Service

(From page 10)

The Hoover Co., North Canton, O.
International Business Machines, Inc., Poughkeepsie, N. Y.
International Harvester Co., Waukesha (Wis.) Works.
Johns-Manville Corp., Lompoc Plant.
C. D. Johnson Lumber Co., Toledo, Ore.
Kauai Consolidated Terminals, Ltd., Lihue, Kauai, Hawaii.
Kentucky Synthetic Rubber Corp., Louisville. Entire company.
Kingsport Press, Inc., Kingsport, Tenn. Entire company.
Lago Oil & Transport Co., Ltd., Aruba Refinery, Aruba, N. W. I.
Liberty Powder Co., Wabash River Division, Newport, Ind.
The Lord Baltimore Press, Baltimore, Md.
Material Service Corp., Chicago. Entire company.
The Mengel Co., Furniture Division. Entire company.
Michigan Steel Casting Co., Detroit. Entire company.
Monsanto Chemical Co., Three awards: Everett, Mass.; John F. Queeny Plant, St. Louis; Plastics Division, Texas City, Texas.
The Munising Paper Co., Munising, Mich. Entire company.
National Gypsum Co., Bellafonte, Pa.
National Sugar Refining Co., Pennsylvania Sugar Div.
North American Aviation, Inc., Downey Plant.
Oswega Falls Corp., Kansas City (Kans.) Branch Plant.
Perfect Circle Corp., Hagerstown (Ind.) Plant.
Philco Corp., Two awards: Lansdale Tube Plant, Pa.; TV-Radio Div.
Phelps Dodge Corp., Morenci (Ariz.) Branch.
Pickands Mather & Co., Vermillion Mining Co., Hibbing, Minn.
The Pittsburgh & Conneaut Dock Co., Conneaut, Ohio. Entire company.
The Port of New York Authority, New York City. Entire company.
The Procter & Gamble Defense Corp., Milan, Tenn.
Quebec Iron & Titanium Corp., Havre-St. Pierre, Saquenay, P. Q., Quebec.
Ralston Purina Co., Montreal Unit.
Remington Arms Co., Inc., Bridgeport (Conn.) Works.
Reynolds Metals Co., Richmond (Va.) Radiator Co.
Richardson Paint Co., Inc., Baraboo, Wis. Entire company.
Rohm & Haas Co., Bridesburg Plant, Philadelphia.
Ryan Aeronautical Co., San Diego, Calif.
Sandia Corp., Albuquerque, N. M.
St. Regis Paper Co., Pensacola, Fla.
Sonoco Products Co., Hartsville (S. C.) Plant.
Standard Oil Co. (Ind.), Whiting Refinery, Chicago.
State Highway Commission, Olympia, Wash. Entire company.
Steele Heddle Manufacturing Co., Philadelphia. Entire company.
Swift & Co., Seven awards: Fort Worth; Harrisburg; Los Angeles; North Portland; San Antonio; South St. Joseph Plant; U. S. Yards.
Trackson Co., Milwaukee, Wis.
Union Carbide & Carbon Corp., New York City. Entire company.
United States Gypsum Co., Sweetwater (Texas) Plant.
United States Rubber Co., All Domestic Plants.
United States Steel Corp., Steel Producing Divisions.
Western Electric Co., Inc., Six awards: Allentown, Pa.; Greensboro (N. C.) Plant; Hawthorne Works, Chicago; Indianapolis Works; Kearny (N. J.) Works; New Orleans Distributing House.
Woodward Governor Co., Rockford, Ill.
Woodward Iron Co., Dolomite Mine, Pleasant Grove, Ala.

AWARDS OF MERIT

ACF Industries, Inc., St. Louis (Mo.) Car Plant.
Air Reduction Co., Inc., New York City. Entire company.
Allis-Chalmers Manufacturing Co., Cedar Rapids (Iowa) Works.
American Cast Iron Pipe Co., Birmingham, Ala. Entire company.
Aluminum Co. of America, Six awards: Alcoa (Tenn.) Fabricating; Cleveland Works; Closure Division, Richmond, Ind.; Davenport (Iowa) Works; Garwood (N. J.) Works; Los Angeles Works.
The American Agricultural Chemical Co., Pierce (Fla.) Plant.
American Cyanamid Co., Two awards: Brewster, Fla.; Willow Island, W. Va.
The American Sugar Refining Co., Chalmette (La.) Plant.
Anaconda Wire & Cable Co., Anderson (Ind.) Plant.
Armco Steel Corp., Butler (Pa.) Works.
Automatic Transportation, Chicago Unit.
Arvin Industries, Inc., Columbus (Ind.) Plant.
The Atlantic Steel Castings Co., Chester, Pa. Entire company.
Atlantic Steel Co., Atlanta. Entire company.
Atlas Powder Co., Two awards: Blasting Supplies Works; Senter Works, Houghton, Mich.
Bakelite Co., Bloomfield, N. J.
Bendix Aviation Corp., Marshall Eclipse Div., Green Island, N. Y.
Black Hills Power & Light Co., Rapid City, S. D. Entire company.
Brammer Manufacturing Co., Davenport, Iowa.
Brown and Bigelow, St. Paul, Minn.
The Buckeye Cotton Oil Co., Five awards: Binghamton Mill; Charlotte (N. C.) Mill; Corinth, Miss.; Traders Oil Mill Co., Fort Worth; Selma, Ala.
F. N. Burt Co., Inc., Buffalo.
Canadian Cellucotton Products Co., Inc., Niagara Falls, Canada.
Canadian Industries (1954), Ltd., Four awards: Central Research Laboratory; Montreal Office Buildings; Nobel Works; York Works.
Cascades Plywood Corp., Lebanon, Ore. Entire company.
J. I. Case Co., Racine (Wis.) Tractor Div.
Ceco Steel Products Corp., Chicago Manufacturing Plant.
Celanese Corp. of America, Four awards: Hopewell, Va.; Narrows, Va.; Newark, N. J.; Ocotlan, Jalisco, Mexico.
The Celotex Corp., Marrero (La.) Plant.
Champion International Co., Lawrence, Mass. Entire company.
Chemstand Corp., Pensacola (Fla.) Plant.
Collyer Insulated Wire Co., Central Falls Plant, Pawtucket, R. I.
Consolidated Mining & Smelting Co. of Canada, Ltd., Sullivan Mine, Kimberly, B. C.
Container Corp. of America, Philadelphia.
Continental Screw Co., New Bedford, Mass. Entire company.
Coosa River Newsprint Co., Coosa Pines, Ala.

—To page 78

PAX·LANO·SAV HEAVY DUTY

GRANULATED SKIN CLEANSER

gets hands so clean they are "baby-safe"!

LOOK for the
PAX ROOSTER

PAX®

This FAMOUS TRADEMARK
is your assurance of a
SUPERIOR PRODUCT

Workers appreciate the thorough PAX cleansing action that lets them go home to their families clean and free from germ-laden industrial grime. That's right, in just about one minute PAX removes all the dirt, and sends them away "washroom happy."

And *you'll* be happy with the excellent results you get with PAX in your washroom, too. Not only is worker morale boosted, but dermatitis claims can be reduced as well. Cracked hands are vulnerable to bacteria, but the rich PAX blend of emollients, including lanolin, leaves hands soft and moist, never dry and cracking.

Try PAX-LANO-SAV® HEAVY DUTY soon and see the improvement *real* cleanliness can make in dermatitis protection and plant morale.

G. H. PACKWOOD MFG. CO.
MANUFACTURING CHEMISTS
1534 TOWER GROVE AVE.
ST. LOUIS 10, MO.

Order a FREE SAMPLE Now!

Please have a PAX representative call on me with samples. No obligation, of course.

Name_____
Title_____
Firm_____
Street_____
City_____ Zone ( ), State_____

55-D

Distinguished Service

(From page 76)

Crosley Division, Avco Manufacturing Corp., Nashville.

Crucible Steel Co. of America, Park Works, Pittsburgh.

The Crystal Tissue Co., Middletown, Ohio. Entire company.

Dan River Mills, Inc., Danville, Va.

Deere & Co., Two awards: Dubuque Tractor Works; Waterloo Tractor Works.

A. DeWeese Lumber Co., Inc., Philadelphia, Miss.

Eaton Manufacturing Co., Marshall, Mich.

Electric Steel Castings Co., Indianapolis. Entire company.

Electro Metallurgical Co., Ashtabula (Ohio) Plant No. 616.

Falls City Brewing Co., Inc., Louisville. Entire company.

Fieldcrest Mills, Inc., Spray, N. C., Three awards: Central Warehouse; Electric Blanket Mill; Synthetic Fabrics Mill.

The Firestone Tire & Rubber Co., Nine awards: Akron Plants No. 2 and 3; Bombay, India, Plant; Gastonia (N. C.) Mill; Christchurch, New Zealand, Plant; Fall River (Mass.) Plant; Memphis Tire Plant; Pottstown (Pa.) Tire Plant; Sao Paulo, Brazil, Plant.

The Flour City Ornamental Iron Co., Minneapolis. Entire company.

The Formica Co., Cincinnati, Two awards: Evendale Plant; Winton Place Plant.

Fraser Companies, Ltd., Newcastle (N. B.) Plant.

Gar Wood Industries, Inc., Findlay Division, Ohio.

Gaylord Container Corp., Three awards: Atlanta; Baltimore; Beaver Falls (Pa.) Plant.

General Aniline & Film Corp., Rensselaer (N. Y.) Plant.

General Electric Co., Four awards: Kentucky Glass Works; Small Integral Motor Dept., Fort Wayne; Specialty Transformer Dept., Fort Wayne; Utica (N. Y.) Communication Equipment Plant.

General Foods Corp., Corn Mill Division, Kankakee, Ill.

Gillette Safety Razor Co., South Boston, Mass.

B. F. Goodrich Chemical Co., Louisville Plant.

The B. F. Goodrich Co., Five awards: Akron; Brecksville, Ohio; Du Bois, Pa.; Footwear & Flooring Division; Los Angeles (Calif.) Plant.

The Goodyear Tire & Rubber Co., Two awards: Java Plant; Sweden Plant.

The Hallicrafters Co., Main Plant, Chicago.

Hanna Engineering Works, Chicago. Entire company.

Hercules Powder Co., Naval Stores (Class 400).

Heywood Wakefield, Gardner (Mass.) Plant.

Edward Hines Lumber Co., Wolcott Avenue Plant, Chicago.

Inland Steel Co., Indiana Harbor Works.

International Harvester Co., Four awards: Harvester Press Plant; Louisville Works; Memphis Works; Richmond (Calif.) Unit.

International Paper Co., Tonawanda (N. Y.) Mill No. 45.

Kaiser Aluminum & Chemical Corp., Two awards: Permanente (Calif.) Chemical; Natividad, Calif.

Kansas City (Mo.) Water Dept. Entire company.

Kennecott Copper Corp., Arthur Plant, Garfield, Utah.

Walter Kidde & Co., Inc., Belleville, N. J.

Kimberly Clark Corp., Kimberly (Wis.) Mill.

Lea Fabrics, Inc., Newark, N. J.

Lee Rubber & Tire Corp., Youngstown (Ohio) Plant.

Lehigh Structural Steel Co., Allentown, Pa.

R. G. Le Tourneau, Inc., Vicksburg (Miss.) Unit.

Libby McNeill & Libby, Lakemills, Wis.

Eli Lilly and Co., Indianapolis. Entire company.

Line Material Co., Division of McGraw Electric Co., East Stroudsburg, Pa.

Lily-Tulip Cup Corp., Augusta (Ga.) Unit.

Manitoba Paper Co., Ltd., Pine Falls (Manitoba, Canada) Div.

Marathon Corp., Two awards: Northern Paper Mill, Green Bay, Wis.; Wausau (Wis.) Division.

Martin-Parry Corp., Toledo. Entire company.

Maui Pineapple Co., Ltd., Kahului Cannery, Hawaii.

The Maytag Co., Two awards: Plant No. 1, Newton, Iowa; Plant No. 2, Newton.

Maxwell House Division, General Foods Corp., Hoboken, N. J.

McCreary Tire & Rubber Co., Indiana, Pa. Entire company.

Minneapolis Moline Co., Moline (Ill.) Plant.

Moorman Manufacturing Co., Quincy, Ill.

Moraine Paper Co., West Carrollton, Ohio. Entire company.

Morse Chain Co., Division of Borg-Warner Corp., Ithaca, N. Y.

National Carbon Co., six awards: Asheboro, N. C.; Bennington, Vt.; Acheson Plant, Niagara Falls, N. Y.; Jersey City (N. J.) Warehouse; National Plant, Niagara Falls, N. Y.; Red Oak, Iowa.

National Gypsum Co., Two awards: Kimballton, Va.; National City, Mich.

National Malleable & Steel Casting Co., Melrose Park (Ill.) Works.

National Portland Cement Co., Bethlehem, Pa. Entire company.

North American Aviation, Inc., Two awards: Fresno Plant; Los Angeles Plant.

North American Cyanamid, Ltd., Two awards: Niagara Falls (Canada) Plant; Welland Plant.

Owens-Illinois Glass Co., Six awards: Charleston, W. Va., Plant No. 06; Clarion, Pa., Plant No. 17; Huntington, W. Va., Plant No. 02; Streator, Ill., Plant No. 09; Toledo Plant.

Pabst Brewing Co., Peoria Heights, Ill.

Paine Lumber Co., Ltd., Oshkosh, Wis.

Pan-Am Southern Corp., Destrehan (La.) Refinery.

Philco Corp., Two awards: Mt. Clements, Mich.; Watsontown, Pa., Plant No. 75.

Pickands Mather & Co., Three awards: Corsica Mine, Hibbing, Minn.; Mahoning Mine, Hibbing; Sagamore Mine, Hibbing.

Plastics Engineering Co., Sheboygan, Wis. Entire company.

Portland (Ore.) Gas & Coke Co. Entire company.

Procter & Gamble Manufacturing Co., Three awards: Baltimore Plant; Long Beach (Calif.) Plant; St. Louis Plant.

The Quaker Oats Co., Petersborough (Ontario) Plant.

R. C. A. Victor, Television Division, Bloomington, Ind.

Remington Rand, Inc., Louisiana Ordnance Plant, Shreveport.

River Raisin Paper Co., Monroe, Mich. Entire company.

Saco-Lowell Shops, Biddeford and Edwards Division, Biddeford, Me.

Schmidt & Ault Paper Co., York, Pa.

C. Schmidt & Sons, Inc., Philadelphia. Entire company.

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The Telephone Pole That Became a Memorial

The cottage on Lincoln Street in Portland, Oregon, is shaded by graceful trees and covered with ivy.

Many years ago, A. H. Feldman and his wife remodeled the house to fit their dreams ... and set out slips of ivy around it. And when their son, Danny, came along, he, too, liked to watch things grow. One day, when he was only nine, he took a handful of ivy slips and planted them at the base of the telephone pole in front of the house.

Time passed ... and the ivy grew, climbing to the top of the pole. Like the ivy, Danny grew too. He finished high school, went to college. The war came along before he finished—and Danny went overseas. And there he gave his life for his country.

Not very long ago the overhead telephone lines were being removed from the poles on Lincoln Street. The ivy-covered telephone pole in front of the Feldman home was about to be taken down. Its work was done.

But, when the telephone crew arrived, Mrs. Feldman came out to meet them. "Couldn't it be left standing?" she asked. And then she told them about her son.

So the pole, although no longer needed, wasn't touched at all. At the request of the telephone company, the Portland City Council passed a special ordinance permitting the company to leave it standing. And there it is today, mantled in ivy, a living memorial to Sergeant Danny Feldman.

BELL TELEPHONE SYSTEM

Here's dependable protection

for your plant and production

IN FOUR FEET OF SPACE

WE'VE PUT

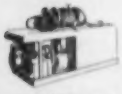
FIRE-TRUCK

PERFORMANCE

with JOHN BEAN HIGH-PRESSURE FOG to knock out Fires Fast

Two-Gun Self-Propelled Model

One-Gun Self-Propelled Model



Skid-Mounted Stationary or Portable

Cabinet-Type Stationary Model

Now, there's dependable fire control for your plant — real protection for production and profits — in the complete new line of John Bean Industrial Fire-Fighters. Both stationary and miniature mobile models use the same John Bean High-Pressure Fog Pump design "one-man" hose lines and patented Fog Guns as the full-size municipal fire-trucks.

Only John Bean High-Pressure Fog, delivered at 600 pounds (or more) nozzle pressure, has such fast triple action — it cools, it smothers, it isolates flames in seconds — makes one gallon of water do the work of ten. Fires in oil, gasoline, lacquers, solvents — in any flammable liquid or material (except magnesium) — are all controlled with amazing speed.

Not only are fires stopped before they become disasters, but the usual losses from putting them out are eliminated or minimized. Because true high-pressure fog makes one gallon of water do the work of ten, you reduce water damage and save down-time on machines and production lines.

The full story is worth your investigation. Write today for your copy of the new John Bean Industrial Fire-Fighter Catalog.

JOHN fmc **BEAN**

Division of

FOOD MACHINERY AND CHEMICAL CORPORATION

DEPT. IF, LANSING 4, MICHIGAN

Distinguished Service

—From page 78

G. D. Searle & Co., Chicago. Entire company.

Seth Thomas Clocks, Thomaston, Conn.

Sheffield Steel, Division of Armco Steel Corp., Houston.

Shell Development Co., Emeryville Research Center.

Signode Steel Strapping Co., Plants No. 1 and 2, Chicago.

Solar Aircraft, San Diego.

The Sorg Paper Co., Paper Manufacturing Plant, Middletown, Ohio.

Spartan Grain & Mill Co., Inc., Spartanburg (S. C.) Mill.

Stockham Valves & Fittings, Birmington, Ala. Entire company.

Sunnen Products Co., St. Louis. Entire company.

Swift Manufacturing Co., Columbus, Ga.

Swift & Co., Six awards: Denver Plant; Neuhouff Plant; St. Louis Industrial Plant; Spokane Plant; V. W. S. Plant; White Provision Plant.

Sylvania Electric Products, Inc., Six awards; Brookville, Pa.; Burlington, Iowa; General Offices; Emporium, Pa.; General Office of Lighting Division, Salem, Mass.; Lighting Division, Ipswich (Mass.) Plant; Receiving Tube Plant, Emporium, Pa.

Synthane Corp., Oaks (Pa.) Plant.

Tampa Electric Co., Tampa, Fla., Entire company.

Texas Foundries, Inc., Lufkin, Texas.

The Toni Co., St. Paul (Minn.) Plant.

Torrington Co., Standard Plant, Torrington, Conn.

Transcontinental Gas Pipe Line Corp., Houston. Entire company.

United States Gypsum Co., Two awards: Boston Plant, Charlestown, Mass.; Clark (N. J.) Plant.

United Shoe Machinery Corp., Beverly, Mass.

United States Rubber Co., Three awards: Naugatuck Chemical Division; Kankakee Unit, Joliet (Ill.) Arsenal; Painesville Plant.

United States Vanadium Co., Pine Creek Mill, Bishop, Calif.

Universal Winding Co., Cranston, R. I. Entire company.

Veterans Administration Hospital, Canandaigua, N. Y.

Vitreous Steel Products Co., Nappanee, Ind. Entire company.

S. D. Warren Co., Westbrook, Me.

Weil-McHain Co., Michigan City, Ind.

—To page 82

Braided slings ARE HARD TO BEAT

Where really heavy lifts are involved, you'd have a hard time finding a better sling than the Bethlehem braided type. It hugs loads snugly; it's highly flexible, easy to handle, and very, *very* strong.

Illustrated here are two varieties of braided slings, both of them versatile performers. One is the modified Bethlehem 126, the sling shown handling the axle forging. It is equipped with a thimble on one end, a sliding choker hook, and an arc-thimble on the top end.

The other picture shows a pair of Bethlehem 127's lifting a big cast roll. The 127 has identical served loop ends. This is a model with a wide range of uses and is, in fact, one of the most popular that Bethlehem makes.

Your own lifts may be quite different from these two, and possibly other types of slings are better suited to your needs. If so, the Bethlehem shops can fabricate the model that will simplify your handling jobs. In addition to braided, single-part, grommet, bridle, and other standard types, Bethlehem can readily make up any special slings that the circumstances call for.

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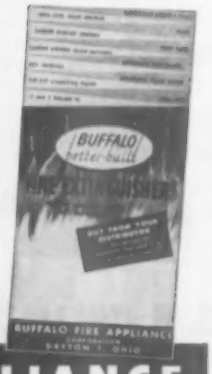

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Distinguished Service

—From page 80

Western Electric Co., Inc., Six awards: Burlington Shops; Cleveland Distributing House; Denver Distributing House; Laureldale (Pa.) Shops; Philadelphia Distributing House; Pittsburgh Distributing House.

West Point Manufacturing Co., Fairfax Mill Division, West Point, Ga.

Westvaco Mineral Products, Carteret, N. J.

Wilsilm, Ltd., Montreal, Quebec, Canada. Entire company.

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Acme Steel Co., Racine, Wis.

Allied Chemical & Dye Corp., Research Laboratory, Hopewell, Va.

American Cyanamid Co., Eight awards: Damascus Plant; Georgetown (S. C.) Unit; Gloucester City Plant; Mobile Plant; New Castle Plant; Panama City Splitting Plant; Pinene Plant, Panama City, Fla.; Woodbridge Plant.

Archer-Daniels-Midland Co., Elizabeth (N. J.) Unit.

Atlas Powder Co., North Chicago (Ill.) Works.

Bayuk Cigars, Inc., Lancaster, Pa.

Brown & Bailey, Philadelphia. Entire company.

The Buckeye Cotton Oil Co., Two awards: Macon, Ga., Raleigh (N. C.) Plant.

Canadian Gypsum Co., Ltd., Mount Dennis Plant, Roofing Division, Toronto.

Canadian Industries (1954) Ltd., Seven awards: Beloeil Agricultural Chemical Works; Brainerd Works; Chatham Works; James Island Works; Halifax Works; Hamilton Chemical Works; Shawinigan Works.

Carbide Power Co., Sault Ste. Marie, Mich.

Celanese Corp. of America, Bridgewater (Va.) Unit.

Colonial Airlines, Inc., General Office & Traffic.

Copolymer Corp., Rubber Plant, Baton Rouge.

Crucible Steel Co. of America, Spring Works.

Electro Metallurgical Co., Dexter City (Ohio) Coal Mine.

Fieldcrest Mills, Inc., Hosiery Mill.

The Firestone Tire & Rubber Co., Two awards: Akron Synthetic Rubber Plant; Woodstock (Ontario, Canada) Plant.

Flexible Steel Lacing Co., Chicago. Entire company.

B. F. Goodrich Chemical Co., Avon Lake (Ohio) Experimental Station.

The Goodyear Tire & Rubber Co., Wallasey, England, Plant.

Hanes Dye and Finishing Co., Winston-Salem, N. C. Entire company.

Haynes Stellite Co., Alexandria (Ind.) Plant.

Hotpoint Co., Plant No. 5A, Milwaukee.

Ingleheart Brothers, Division of General Foods Corp., Pendleton, Ore.

Inland Steel Container Co., New Orleans.

James Manufacturing Co., Plant No. 3, Fort Atkinson, Wis.

Kingston Trap Rock Co., Two awards: Bituminous Products Co., Kingston, N. J.; Lambertville Quarry Co.

Kimberly-Clark Corp. of Canada, Kapuskasing, Ontario.

Kimberly-Clark Corp., Kimlark Plant, Neenah, Wis.

Koppers Co., Inc., Buffalo (N. Y.) Plant, Tar Products Division.

The Lehon Co., Memphis Plant.

Libby McNeill & Libby, Two awards: Alma (Mich.) Plant; Leepsic, Ohio.

Lily-Tulip Cup Corp., Two awards: Chicago; Monticello (Ind.) Plant.

The Maytag Co., Hampton Plant.

McColl-Frontenac Oil Co., Ltd., Edmonton Works, Alberta, Canada.

Mid-Valley Pipeline Co., Longview, Texas. Entire company.

Monsanto Canada, Ltd., Ville La Salle Plant, Montreal.

Monsanto Chemical Co., Two awards: Camden Plant; Port Plastics (Ohio) Plant.

National Carbon Co., Two awards: Pier No. 6, Port Richmond, Philadelphia; Republic Plant, Niagara Falls, N. Y.

National Gypsum Co., Two awards: Good Hope, La.; New Orleans.

Norquist Products, Inc., Jamestown, N. Y. Entire company.

Ohio & Indiana Stone Corp., Greencastle (Ind.) Unit.

Owens-Illinois Glass Co., Kaylo Division, Berlin, N. J.

The Penetone Co., Tenafly, N. J. Entire company.

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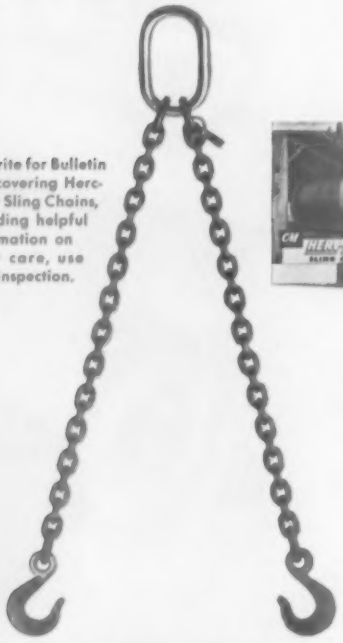

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J. E. Rhoads and Sons, Wilmington, Del. Entire company.

St. Regis Paper Co. (Canada), Ltd., Vancouver, B. C.

Sharp & Dohme, Division of Merck & Co., Inc., Glenolden (Pa.) Plant.

Spartan Grain & Mill Co., Inc., Newberry (S. C.) Mill.

Stauffer Chemical Co., Two awards: Boric Acid Plant, San Francisco; North Portland Plant.

Sylvania Electric Products, Inc., Five awards: Equipment Development Plant, Montoursville, Pa.; Finishing and Shipping, Emporium, Pa.; General Engineering Laboratory, Salem, Mass.; Metallurgy Laboratory, Bayside, N. J.; Point Pleasant (W. Va.) Unit.

Thilmany Pulp and Paper Co., Bag Mill No. R-43, Kaukauna, Wis.

Thickol Chemical Corp., Longhorn Ordnance Works, Trenton, N. J.

Union Asbestos & Rubber Co., Marshville, N. C.

United States Dept. of the Interior, Two awards: Amarillo Helium Plant; Otis Helium Plant, Amarillo.

United States Rubber Reclaiming Co., Inc., Plant No. 2, Cheektowaga, N. Y.

The Visking Corp., Home Office Div., Chicago.

Visking, Ltd., Lindsay, Ont., Canada.

Western Electric Co., Inc., Four awards: Boston Distributing House; Kansas City (Mo.) Distributing House; Seattle Distributing House; Syracuse (N. Y.) Distributing House.

Worcester Taper Pin Co., Worcester, Mass. Entire company.

Industry's Pack Mules

—From page 62

methods, and therefore, require entirely different technique in material-handling.

The ideal solution, of course, would be to replace all these old buildings but it is impossible to consider the replacement of almost ¾ of the number of plants

in existence. This situation has a parallel in warehouses, loading docks, steamship piers and retail stores. Within these old buildings we find problems of floor loads, pillars, narrow aisles, and ceiling heights. These items increase the necessity for a sound safety policy and good judgment in picking specific equipment for operating under these conditions.

We must keep in mind that the industrial floor truck has always been and always will be one of the most valuable aids in the handling of materials.

Could You Define Your Safety Program?

If someone asked you for a precise definition of the Company's safety program, could you give a comprehensive answer? Of course not—neither could the safety director; nor would he wish to do so. Any safety program which can be neatly catalogued into a standard, set formula is doomed to certain failure.

The successful safety program is a flexible one which can be changed from day to day or month to month as experience dictates.

Program Helps Men Think

Though the safety program, per se, defies concise definition, some of its various phases may be enumerated. One definite aim, for instance, is to help men *think* as they *work*.

Every conceivable means of accomplishing this goal is employed, though complete realization of the objective would, of course, necessitate a different program for each individual workman.

Another of the safety program's objectives—to gain complete acceptance of the use of rubber gloves—has very nearly been achieved.

At present, one of the big topics in safety discussions is grounding. The problem has many sides, and a current project is to determine ways and means of taking full advantage of grounding as a protective measure.

These various component ob-

Wouldn't you like to REGISTER with her?

She doesn't look like a menace. But you wonder, sometimes, whether your carefully-planned safety program gets her attention — whether you really register with her.

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Put your safety message right in her hand, several times a day, on an AJAX Cup. Because then she's relaxed, receptive, ready to read. And you know the National Safety Council says safety messages *that get read* do help reduce your accident rate.

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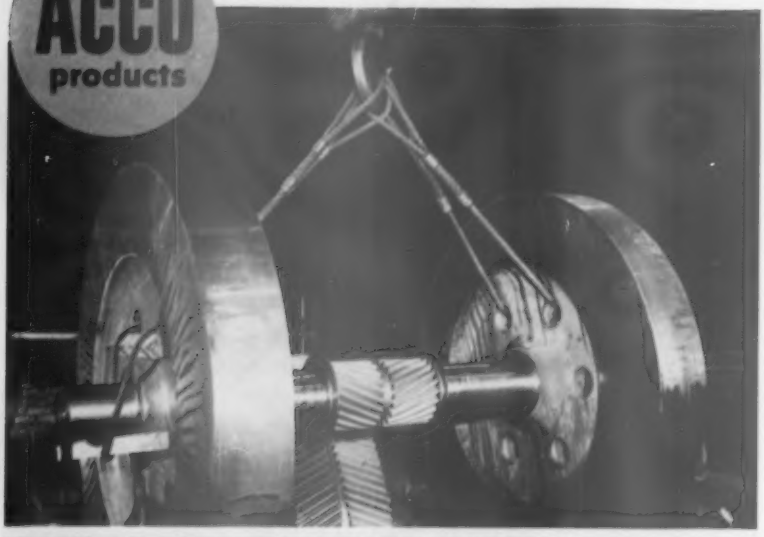

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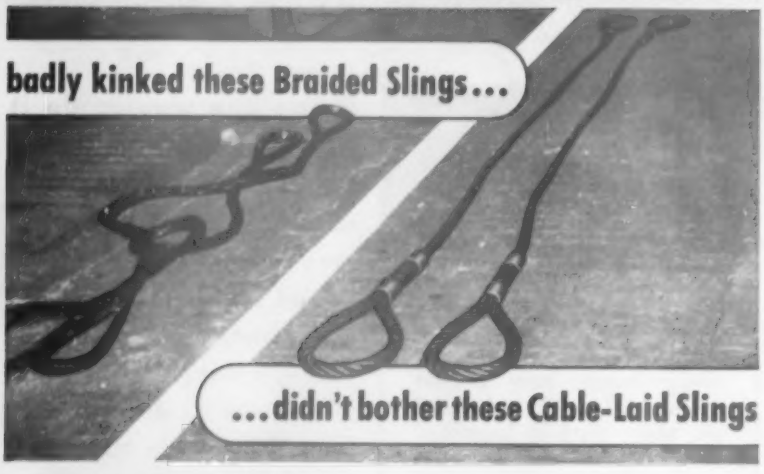

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jectives are, of course, merely facets of the safety department's one all-inclusive aim—the prevention of accidents. These facets, and many others, always flexible, always changing, compose the Company's safety program.

So, if anyone asks, "What is your Company's safety program?" you can proudly reply that it is too complex and too flexible a thing to be restricted to any short answer.

—Safety Monitor, Idaho Power Company

Leadership

—From page 19

These are noble objectives and the project is a vast one. But, being business men, and men of the sea, we know that there must be a practical starting point. In my thinking, all good things start at home. First of all, we need to develop an attitude of constant self-reappraisal—lest we grow too confident or go stale. In the reappraisal we must focus our attention on the simple basics of safety.

The golfer must watch his fundamentals or suffer the consequences of going out of bounds as a result of a slice or a bad hook. The football player, the hockey star, the boxer all must constantly guard against neglecting the basics in their respective fields.

It is no different in administering a safety program. With the development of an awareness of "basics" comes the need for application—and that takes leadership—leadership that fits the times. And, what kind of leadership is that, you may rightly ask?

Modern leadership is the ability of a human being to guide other human beings *through reason*, to direct their activities by appealing to their sense of judgment, justice, and fitness of things.

No one likes directives. Sometimes just a word or two of explanation accompanying an order will make an employee feel he is an important member of his organization. Important enough to understand our methods and our goals.

Convincing our people of our ability to lead might not be as easy as it looks, for we are seldom heros in our home towns. But, leadership is a strange thing, often having its roots entirely in human emotions.

We have in Pittsburgh Steamship many outstanding captains who proudly ascribe their success to their early service under some of our old shipmasters. It isn't surprising to us when we check back to discover that these early shipmasters turn out to be men recognized for their skill as leaders through appeal to human emotions in a day when brawn was often the measure of a captain's authority. This concept of leadership has proved its worth in maintaining discipline and developing loyalty, and it is in our interest to keep this force alive.

And, if we are to realize this greater objective which recognizes not only our obligation, but our stake in the future, it is not enough that we keep this force of leadership alive on our everyday job. We must also bring it into the communities where we spend our non-working hours.

It is doubly important that we take these steps. It is our duty as citizens as well as that of professional safety men. Just as the lawyer who contributes extra curricular time to the community and thereby brings about a betters understanding of government by law; and the teacher makes clear the wisdom of acquiring added knowledge, so can we, as professionals, add to the wealth of our American civilization.

Our churches, our schools, our recreational and our civic organizations must rely on men and women volunteers such as yourselves to bring to them your professional know-how and your leadership, so that we all may live more happily.

If you haven't already been devoting some of your time to these community efforts, do not be abashed and excuse yourself on the basis that you are no silver-tongued Daniel Webster, or a flashy cheerleader.

If you want to know who's doing the job as it's being so well

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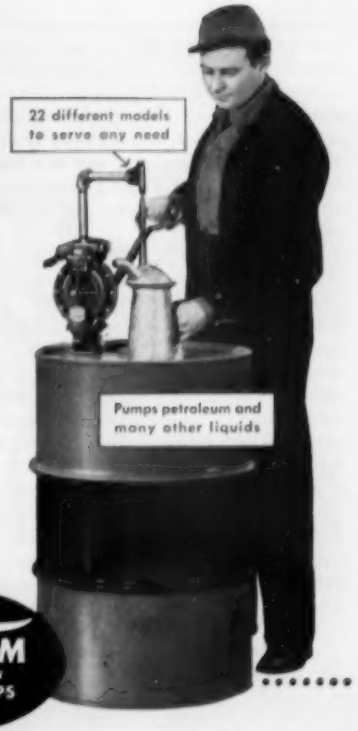

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BRANCH OFFICES: *New York, Boston, Philadelphia, Chicago, Atlanta, Dallas, San Francisco, Portland, Seattle.*

pursued today, take a look at the people who have decided that it is their responsibility to do something over and beyond just living in a community.

They are for the most part, common, everyday individuals like ourselves—people who have jobs to perform to earn their daily bread. They are people who have household chores to do—mowing lawns, rearing kids, repairing leaky faucets, gardening—all the endless tasks which go into maintaining a home.

They probably don't have the time to devote to outside activities, but they find it! Somehow, they manage to eke out an hour or two here and there to devote to helping their fellow man.

There is room for you in the Boy Scouts, Cub Scouts, and Sea Scouts organizations in your community. As a matter of fact, they have a number of special projects and achievements calling for specialized knowledge such as safety men possess. They are a natural for you—as are your church organizations, your Kiwanis, Rotary, and Lions Clubs. Perhaps there even is a place in your local government as a professional advisor on some of the aspects of your respective fields.

If you will just do a little looking around you'll find there is not only room for you, but an urgent demand for your services.

And so, as you return to your homes and your jobs, I hope in addition to the wealth of information that you have acquired here, that you will take time out to look out beyond the horizon and see there the goal that is set for you and for me to make this thing of safety a living thing—a human thing!

I am very sure that in the future you men will be looked upon as the pioneers who barely scratched the surface of this important role of safety—but having scratched it, had the foresight to plant the seed of safety and cultivate it to help produce the wonderful world that can be yours and your children's. And surely the safety of tomorrow can be realized with proper leadership.

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it's at least 120° under my helmet.

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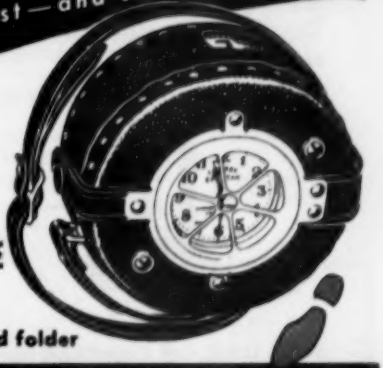

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The Group Approach

—From page 52

something else, and feels that he needs a change.

Secondly is physiological fatigue, which is primarily a matter of chemical changes in the muscles. This is not always accompanied by a feeling of exhaustion or by a reduction of the immediate amount of work a person is able to do.

Lastly we have what is known as industrial fatigue. This is a combination of many things, such as poor lighting, temperature and ventilation, noise, food and hours of work. These conditions may act indirectly upon the worker. Industrial fatigue especially can make the worker think that no one cares about his welfare and that he has to shift for himself. If management does not have concern for the worker, often he will have no concern for himself. Many types of fatigue can be combated with methods that make the job more interesting for the worker. The worker who is interested in his job will not get tired so readily.

Wherever possible, work simplification should not be carried to extremes so that the worker is not acting as a machine performing elementary tasks over and over and rapidly becoming bored with the simplicity of his job.

In a general sense, psychological methods attempt to eliminate the fault in the person, which is at the beginning of the accident sequence. Usually a complete study of the individual's background would be necessary before corrective measures could be taken. Few companies have the personnel to carry on this type of investigation. It would take a large staff of qualified people to do clinical studies on the working forces in many large companies.

Interviewing and testing can be of some help in locating the psychologically unbalanced and accident prone. In most companies however, a complete and comprehensive testing program is prohibitively expensive. The administration of a battery of tests, including probably a projective type test, requires highly skilled

personnel and in most cases a large amount of time. Projective tests and their like are not given in the majority of companies because they are too expensive to administer. It is for this last point that we must find an answer. If we cannot, we must look elsewhere for the solution.

The whole question of safety for the worker centers around incentives not to get hurt. When the worker does not care, he is preparing himself to become the first link in the sequence that precedes an accident. Incentives can be of many different types and in many ways are very helpful in cutting down accident rates.

First, and obviously most important, is the incentive of self-preservation. Often, with workers of low mentality this is the only appeal which they will remember and heed. The fear of personal injury is great and when it is played up in posters and campaigns, it can be an effective tool. Posters showing actual injuries have always been a trifle gory, but nevertheless effective with some types of persons. The point that "this can happen to *you*" can be effectively used not only in industry, but also in traffic safety.

Second, we have the aspect of personal and material gain. Many people are more concerned with monetary and personal gain than anything else, so this is the appeal by which they can be most effectively approached. Many plans are built around this basic idea. Some companies give bonuses for accident free terms. Certain types of employment plans may map out a life time service career showing promotions and other benefits that result from a satisfactory record.

It can be pointed out that accidents interfere with continuity of service and with the rewards that such service provides. More directly, quality and length of service may be coupled with accident-free service when the employee is being considered for promotion or salary increase.

A much less tangible incentive for safe work is that of loyalty. If workers have a well developed sense of loyalty to the company

This $9.28 sale

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Arms loaded, vision obscured, Mr. Gordon never made it to the check-out counter.

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and their bosses and fellow workers, they will tend to become more careful in their daily work. If they can be made to feel that accidents will affect the foreman's record, company overhead cost, quality of product or fellow employees, employees will tend to be more careful. This is admittedly a difficult concept to build on.

A very strong incentive that may be used as a lever to force the worker to think about safety and, more important, to practice it, is pride in his work. Pride increases as achievement progresses. The worker who is not so intelligent and does not turn out such sterling work will be more affected by this than the excellent worker. The poor worker, if he can be made to improve, will have greater pride in the advances he has made. The more competent worker, however, cannot improve by such a large amount, and his advancement will be harder to see.

Pride can be brought about in many different ways, the most effective of which is of course, praise. Approval of good work is a stimulus upon which pride thrives. Congratulations upon a safe performance therefore is a successful medium of approach.

An interesting and relatively new field in safety is that of group behavior. It is found that people tend to conform voluntarily to the behavior patterns of their group because they desire the group's approval. If they have to choose between the approval of their group and the approval of the world at large (while being disapproved by their group) they will usually choose the former.

This desire to conform is very strong in all members of a closely knit group and applies equally to opinions and ideas, not only actions, frequently without the conscious awareness of the person concerned. While the individual is generally anxious to conform with his group, the group also has ways of insuring conformity among those who fail to fall into line. Since most people desire group membership, they dislike anything that threatens the unity of their group. If the group leaders can be instilled with the will to perform safely, the group will follow their lead.

It can be seen that groups tackle problems more efficiently than individuals; just how efficiently depends to some extent on the quality of leadership. Group achievement is also felt as a satisfaction by every member. Groups also tend to set themselves much higher standards of performance than anyone would dare to think of doing if he were to do something individually.

It is through this aspect of the group that the problems of safety can be approached more effectively. We also find that the group tends to find the mentally unbalanced and/or accident prone and reject this person from membership. In this way, workers themselves often single out those who are prone to accidents. From there, they may be given treatment by a psychologist, or in other ways be helped to become more secure and safer workers.

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There is no pat answer for how to make people perform safely. I believe that the most profitable and rewarding approach to the safety problem is in the realm of group dynamics and psychology. It will be through the work in group safety education that in the future we will start whittling down our dangerously high accident rate.

As has been seen in the field of social psychology, group dynamics can influence people in many ways, oftimes change their mode of reacting to different situations and in many ways completely change their personality. If the leadership of groups within a work force can be approached and taught the importance and dynamics of safety and how it can only be *their* job to operate safely, that no one else can do it for them, we might well be on the road to reducing our accident rates.

Admittedly this will be a very difficult job. However, this approach might be more effective than the individual approach to the safety problem which has been predominantly used. If we can induce key groups to practice safe methods in their work, other groups may follow. It is possible to see that this is a much more rapid method than just inducing each individual worker to work safely and hoping that one by one others will follow his example.

To be frowned upon by the group and worst of all to be an outcast from the group, to many people, is something that they cannot tolerate. For this reason they will try everything in their power to stay in the group in which they feel secure and wanted. In an ideal situation, if the leaders become safety conscious, the group will become safety conscious. If this would spread to all groups within the organization, amazing drops in our injury rate would take place.

Safety Engineer's Diary

—From page 25

really looking for another angle to prove out. For the last year, we've been handling the truckers in two different ways. Half of 'em are getting the standard training and supervision that have been used here for five years. The other half are being given special refresher training courses at quarterly intervals, and are filing weekly reports on incidents, which are compared with a foreman's weekly estimate of performance in a man-to-man interview between trucker and foreman.

"The new plan looks like it's panning out. This accident to Joe was caused by trucker negligence, that we know. When I get back to the office, I'll check his clock number against my list and find out which group he's in. I've got a strong hunch he's in the old-

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procedure group, and that means he'll be one more strong argument for the new procedure—maybe a strong enough argument to put the whole program over 100 per cent, since the evidence is already shaping up in its favor."

Bill nodded understandingly. "Maybe," he said, "you've got something. I guess I blew my top. But Joe's a good guy and—aw, nuts, you understand, don't you?"

I said I did, and we shook hands.

Then I collected Harry and we started back to the office. Just as we were leaving the dock, I heard a shout, and turned to see Bill heading our way.

"Listen," he said when he reached us, "I been thinking. You mentioned about those cartons blocking the view. You can't move them, without making a long hand truck haul. But that warehouse bay just to the right could be cleared, and that partition knocked out, and a slanting approach aisle could bring the power trucks out with a clear view all the way, and. . . ."

So, investigation (stimulated by irritation) was opening yet another possible channel of remedy. I took my notes and went on to the office with a sense of real accomplishment and hope.

Got a Problem?

—From page 29

little success at trying to stem the tide of finger amputations which kept growing apace.

When all the key people, with a little outside professional help, studied the dollars and cents side of the problem, as well as the strictly mechanical problems, the period between lost-time cases more than doubled, and severity fell away sharply too. The maintenance superintendent himself took the lead in asking top management to support him in an effort to stem the tide of losses. Their preventive maintenance program is now paying handsome dividends in both accident prevention and in economics.

Management many times is led to make decisions having serious effects on their accident costs either because of misinformation

or the lack of pertinent information. It is natural for decisions to be made that way, as most executives expect complete and up-to-date correct information from the engineering department, from sales, and from production.

They naturally expect that kind of information from the safety man—overlooking completely the fact that the men they depend on in this respect usually have had no training and probably very little, if any, experience in presenting information for top management consideration. Very often, after a disappointment or two, they even quit asking for information and try to go it alone with no help from the men who should be able to answer their questions.

Then, too, since most management executives have had less personal experience and training in the specifics of overcoming health and accident hazards than is desirable, they will naturally have no impelling urge to get into such problems.

The professional, having had experience with many methods for accomplishing objective results, has learned to avoid the less effective ones which may still be used by some firms.

In some plants, certain hazards have long been considered basic, that is, inherent in the operation of the business. Sometimes this may be true; on the other hand, it is natural to make this assumption because of the lack of reliable information to the contrary.

The plain fact is that some original research may be necessary in order to determine suitable means of getting the job done safely, healthily, and at proper rates and costs. The consultant will often be able to help work out the answers to such problems and to keep the costs down to reasonable levels, even when the technical side of the research project must be done by an outside laboratory.

Very often, such a research activity not only obviates the hazards but brings about production costs that are low enough that the savings more than pay for the research.

Once management is aware of the importantant savings which can be achieved by:

1. Thorough analysis of losses and hazards;
2. Development of specific objectives of cost reduction at all points;
3. Improved selection of prevention techniques; and
4. Practical answers to hitherto unanswered problems which would increase production

. . . it is then in position to use to good advantage the services of consultants specializing in this field.

To put it as simply as possible, the consultant in accident and health problems will almost always bring about beneficial results that had previously seemed all but impossible. His services will usually cost much less than the demonstrated value of those results.

SEECLOTH

CLEANS AND MISTPROOFS

WHAT SEECLOTH IS:

SEECLOTH is a chemically treated fabric which when rubbed on glass both cleans and prevents fogging or misting. It has found use in industry as a convenient method for cleaning and preventing the fogging of goggles of workers who must protect their eyes in various industrial operations.

ECONOMICAL:

It is the most convenient and economical method known for this purpose. One piece (8" x 9") will last for a number of months when used on goggles or glasses.

INCREASES WORKER SAFETY:

The fact that the worker has the means for preventing misting of his goggles right on the job increases the safety of the operation since it reduces the temptation to continue to work with misted glasses. He can fogproof them without leaving his work.

HOW TO USE SEECLOTH:

All that is necessary is to wipe the dry or very slightly moistened glasses with the dry **SEECLOTH** and thus mistproof the glasses for a considerable period.

OTHER USES:

SEECLOTH has also found use in preventing misting of the inside of windshields in foggy or damp weather. Here also all that is necessary is to rub the dry or very slightly moistened glass surface with the dry **SEECLOTH**. Mist will then not form on the area that is rubbed. Other applications include its use on spectacles, mirrors, windows, etc.

HOW SEECLOTH IS PACKAGED:

3" x 8" pieces (not individually packaged). Suitable for eyeglasses and may be kept in the case with the glasses. 8" x 9" pieces (individually packaged in 3½ x 6" polyethylene envelopes). Suitable for goggles and masks and fits easily in the pocket of coveralls. 16" x 18" pieces (individually packaged in 5" x 10" polyethylene envelopes). Suitable for automobile windshields, household use, etc., and fits comfortably in the glove compartment of a car or in the drawer of a kitchen cabinet.

In addition to the standard sizes listed above, **SEECLOTH** will be cut to special sizes on order and is available by the yard—36" wide.

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Calendar Contest Winners for February

First prize in the National Safety Council's Safety Calendar Contest goes this month to Miss C. Jane Ruhl, Ewing-Von Allmen Dairy Co., Louisville, Ky. The theme of this contest was, "Look out for others." Miss Ruhl's line was adjudged the best of all those submitted. It was:

What YOU do affects OTHERS is WHY!

Second prize went to Walter A. Graff, Mississippi Valley Structural Steel Co., St. Louis, Mo., for this line:

We could stop guys like Swift, if we try.

Third prize was awarded to Miss Margaret Watrous, Hamden, Conn. (Individual Member), for the following line:

The words, "Thou shalt not kill," here apply.

The February limerick was:

Jimmy Swift was a speed-happy guy,
"It's my neck!" he would say, "So why cry?"
But 'twas more than one neck
That was lost in Bill's wreck

Jimmy Swift was a speed-happy guy.
"It's my neck!" he would say, "So why cry?"
But 'twas more than one neck
That was lost in Bill's wreck

Thirty $5 awards were issued to:

Mrs. Violet Hagenbuch, St. Regis Paper Co., Nazareth, Pa.

Judson W. Moore, Olin Mathieson Chemical Corp., New Haven, Conn.

Mrs. O. M. Green, Spokane, Wash. (Individual Member).

Mrs. Jim Johnston, Kissimmee, Fla. (Individual Member).

Mrs. Ben Goddard, B. F. Goodrich Co., Kansas City, Mo.

Mrs. Mary Fleener, General Motors Corp., Indianapolis, Ind.

Robert T. Gidley, Dallas, Texas. (Individual Member).

F. M. Kratschmer, Union Wire Rope Corp., Kansas City, Mo.

Walter E. Baldwin, J. I. Case Co., Rock Island, Ill.

John Sweet, Nekoosa-Edwards Paper Co., Fort Edwards, Wis.

Mrs. Iver A. Westerlund, United States Steel Corp., Chisholm, Minn.

George F. Seymour, Allied Chemical & Dye Corp., Hopewell, Va.

Joseph H. Cameron, Worcester County Electric Co., Worcester, Mass.

George A. Larson, Minnesota Department of Highways, St. Paul, Minn.

Ivan L. Herring, Dow Chemical Co., Midland, Mich.

R. S. Kirk, Goodyear Tire and Rubber Co., Cuyahoga Falls, Ohio.

John G. Greene, Caterpillar Tractor Co., Peoria, Ill.

Geneva Ruth Brown, Delco-Remy Division, Anderson, Ind.

Mrs. Mary Krupp, Jones & Laughlin Steel, Cleveland, Ohio.

Rose V. Burnham, Willsboro, N. Y. (Individual Member).

Lt. Col. Edmund J. Evans, New York, N. Y.

Mrs. C. H. Bowlen, Haverhill, Mass. (Individual Member).

Mrs. Grace Martin, Pawtucket, R. I. (Individual Member).

Donald McLeod, Southern Pacific Co., Los Angeles, Calif.

Paul C. Crary, Hartford Fire Insurance Co., Spokane, Wash.

L. J. Burke, Washington State Health Dept., Seattle, Wash.

F. A. Landers, National Lead Co., Houston, Texas.

Thomas H. Wilkins, Transit Casualty Co., St. Louis, Mo.

Richard Kay, Alpha Portland Cement Co., Syracuse, N. Y.

Mrs. John E. Martinson, United States Vanadium Co., Bishop, Calif.

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Obituary

L. F. SHEDD

LLEWELLYN F. SHEDD, a pioneer in railroad safety, died January 20 in Chicago. He was 85.

Mr. Shedd was superintendent of safety for the Rock Island Railroad from the organization of its safety department in 1912 until his retirement March 31, 1939. He took part in the meeting at the Fourth National Safety Congress in 1915 at which the Railroad Section of the National Safety Council was organized. He was also active in the Safety Section of the Association of American Railroads, serving one year as chairman.

Wire from Washington

—From page 4

pared for the *Wire from Washington*, the Department of Labor describes this proposed program as being "designed merely as a booster which will help the States to help themselves." The Department sees these grants-in-aid as being used to equip State labor departments "to make necessary inspections and advise management on ways and means to prevent work accidents." The Department's statement places special emphasis on safety services for smaller business enterprises: "The problem is one of furnishing these smaller employers a safety service similar to that provided by the fulltime safety personnel of the larger employers. The States should be equipped to give this service. . . ."

A subcommittee of the House Committee on Interior and Insular Affairs scheduled hearings on 4 identical bills, H.R. 38, 77, 2391 and 2444, which would authorize Federal aid to the State of Pennsylvania in connection with flooded hard coal mines.

Interest continued active on matters affecting air and water pollution, with the introduction of additional bills to provide tax-abatement encouragement for the construction of treatment works (H.R. 3901, 3906, 4313), and for the amendment of the Water Pollution Control Act (H.R. 4010).

Home Safety

H.R. 4099 (Priest) and H.R. 4100 (O'Hara) are intended to protect the public health by amending the Food, Drug and Cosmetic Act to prohibit the use in food of new chemical additives not adequately tested to establish their safety. H.R. 4475 (Delaney) has a similar purpose and H.R. 4476 (Delaney) has the same end in connection with chemicals in cosmetics.

Insurance

The Federal Trade Commission sometime back issued complaints, charging "false and misleading advertising," against 23 of the some 900 insurance companies providing hospitalization, accident and health insurance. The first initial decision in these cases has been rendered. Subject to FTC approval, one company has agreed to the issuance of a consent order prohibiting the practices challenged by the Commission.

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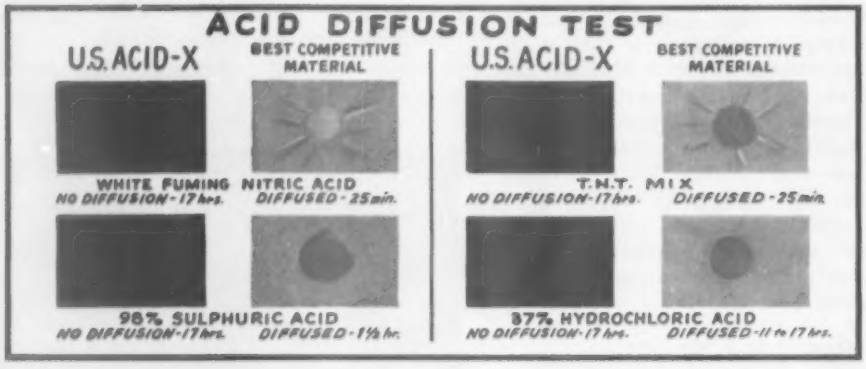
Yes! Under acid-corrosive conditions, new double-coated U. S. Acid-X apparel offers significant economies. For these aprons, overalls, jackets, hats provide so much better acid-resistance than ordinary acid-resistant apparel. Not only strong and sturdy, but generously cut, they give comfort all day.



The above shows the comparative action of acid on U. S. Acid-X clothing and ordinary protective clothing.

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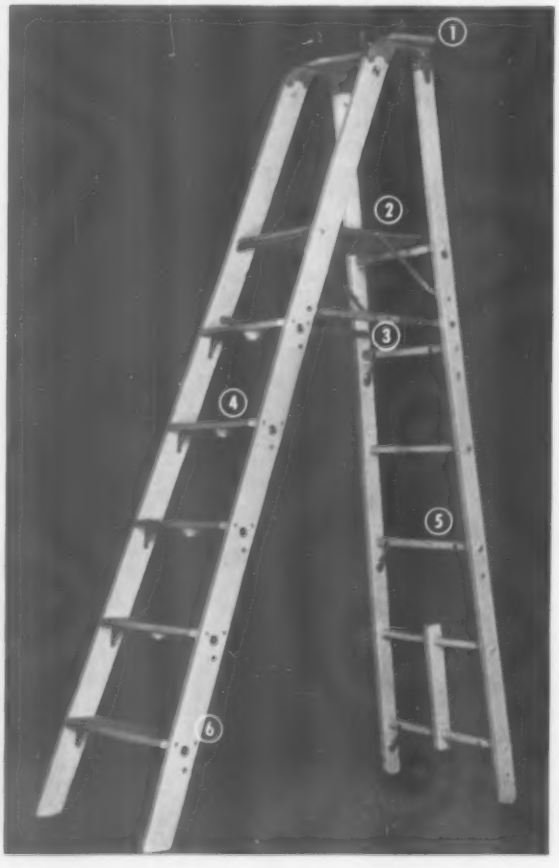

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WHAT'S NEW
IN
NATIONAL SAFETY COUNCIL SERVICES *

Operation Safety

A leading cause of traffic accidents—and consequently of time lost from work—is the habit of hurry that keeps some people in a constant tizzy. They leave themselves barely enough time to drive to work, so they speed up and take unnecessary chances to save a minute here and there. The trip home is made in the same impatient mood. Rain, fog, a car that's not in top mechanical shape, fatigue, or a blinding headache won't slow them down.

The June Operation Safety Program warns these people to "Slow Down and Live!" The entire program is designed to impress upon drivers the danger of impatience and hurry . . . to point out to them that speed must always be determined by conditions of weather, road, traffic, the car's mechanical fitness and the driver's mental and physical state.

The June program offers a poster that says, "Keep Off the Gas, Slow Down and Live!" This poster comes in two sizes. The "C" size, 25″ x 38″, is suitable for posting at exits and entrances to plant parking lots and at any indoor location where a large poster is desired. The "A" size, 8½″ x 11½″, is excellent for bulletin board posting.

Sample leaflets on the subject of speed control are included in the June kit. These may be circulated by means of hand-out boxes throughout plant and office or distributed with pay envelopes or company literature.

The kit also contains other aids for the off-the-job safety program. There are news releases and an editorial that can be adapted for use in the company house organ, and radio spot announcements that can be carried over the PA system. There is also information about mats for the house organ and film trailers that may be shown at company meetings.

Complete information about Operation Safety may be obtained by writing to Operation Safety, National Safety Council, 425 N. Michigan Avenue, Chicago 11, Illinois.

Safety Talks for Foremen

Here's the fifth in the series of *Five-Minute Safety Talks for Foremen.* Whether it's an informal safety pep talk, a scheduled weekly training meeting, or just a routine job-instruction session with a new worker, these new five-minute talks equip your foremen and supervisors to do a better job.

As in the other four volumes, No. 5 contains 52 talks—each written by a safety man with years of experience in his field.

The talks cover many phases of accident prevention. About half of them are of general interest while half discuss specific subjects.

Each talk is illustrated with a lively drawing that points up the theme of the talk such as the accompanying illustration on personal protection.

AGA to Participate in Atomic Tests

The American Gas Association will participate in the civil defense phase of the forthcoming atomic test, to be held in April at the Nevada Test Site, Mercury, Nev., under the auspices of the Federal Civil Defense Administration. Various major industries have been asked by the Federal Civil Defense Administration to participate.

Objectives are to determine effects of ground shock, and atmospheric overpressure and elevated temperature on typical gas industry installations as a result of atomic explosions. Included in the test would be underground gas mines, underground vaults and pits containing pressure regulators and valves, service piping, house meters and piping, domestic gas burning appliances and emergency gas repair and replacement equipment on trucks.

These will be installed at various distances from a focal point called ground zero. The ultimate gas industry objective of the test is the preparation and distribution within the industry of a report or a manual indicating the areas, extent and types of expected damage from nuclear explosion, and giving recommendations for types of construction and equipment that will minimize such damage.

* Look to this page each month for latest news about NSC services. Address requests for additional information, samples or prices to the Membership Department.

For a More Successful Poster Program

POSTER program aids miniatured on this and the following pages are NEW — shown here for the first time. Those illustrated in one color on the following two pages are actually printed in two or more colors.

For maximum variety, refer to the 1955 Directory of Occupational Safety Posters. There you'll find 744 top-notch selections on a great variety of subjects. Additional copies of the directory are 50 cents each—write Membership Service, N.S.C.

get home SAFE

JUMBO POSTER for JUNE 1955

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

SAFETY BANNER FOR JUNE, 1955

Here is the attention-getting, monthly cloth banner. Available in two types—indoor and outdoor—both are identical in size (10 feet long by 40 inches high), have the same general message and multi-colored design. Indoor type is of sturdy drill with grommets for easy hanging, while the outdoor banner is of extra heavy drill, with wind vents, and has strong stitched-in rope for durability.

NATIONAL SAFETY COUNCIL

0283-A 8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1955 Poster Directory.

Posters below are printed in two or more colors

(Available only in sizes indicated)

0447-C 25x38

0375-A 8½x11½

0422-A 8½x11½

0438-A 8½x11½

0404-B 17x23

0437-B 17x23

0344-B 17x23

0376-A 8½x11½

0378-A 8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

(Available only in sizes indicated)

0439-A 8½x11½

0432-A 8½x11½

0440-A 8½x11½

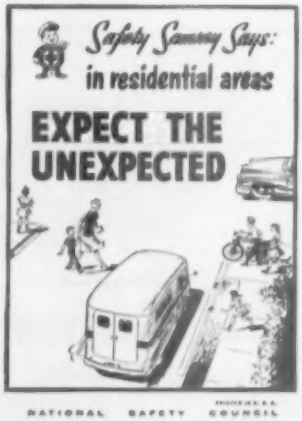
0445-A 8½x11½

T-0131-C 25x38
T-0391-A 8½x11½

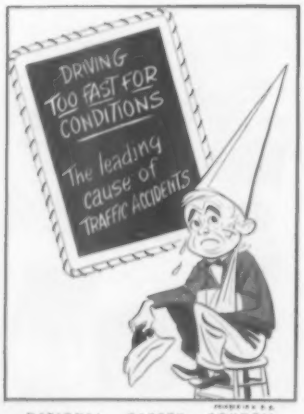
T-0411-B 17x23

Be ready for a change to RED
Don't come along highballing.
Avoid a quick stop up ahead
Keep passengers from falling!
NATIONAL SAFETY COUNCIL

V-0443-B 17x23



V-0442-B 17x23



V-0441-B 17x23

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

A Safe Job at Last (Want to Bet?)

Nicholas Alkemade, of Loughborough, England, has a new job and, for the first time in his life, he feels secure, says a *Chicago Tribune* story.

Alkemade's first job was rear gunner in a bomber. On a mission over Germany in 1944, his plane was hit and caught fire. The pilot ordered the crew to bail out. But Alkemade's parachute was on fire. So was his clothing. Faced by certain death if he remained in the plane, Alkemade jumped —without a chute.

As he tumbled head over heels, he lost consciousness. Three hours later he came to—in a big snowdrift. The 3½ mile fall, plus the snow, had put out the flames in his clothing. The snow had broken his landing.

He started to walk, but discovered a knee was injured. It collapsed on him. He spent the rest of the war in a prison camp.

After the war, Alkemade got a job in a factory. A nine foot piece of steel fell on him. He was knocked out but lived.

He changed his job and started pumping ammonia from a tank, where nothing could fall on him. But his electric pump shorted. The shock knocked him out although his rubber soled shoes saved his life. As he slumped in the tank, his gas mask slipped off. An alert colleague saved him.

He changed his job again. His new task involved transfer of sulphuric acid. The hose broke and acid sprayed over him, but prompt spraying with a neutralizing chemical again saved him.

Alkemade, now 32, and amazed to be alive, has a new job again—selling accident insurance.

Industrial Hygiene

—From page 21

siderable publicity regarding its toxicological effects, and in some cases, restrictive labeling requirements have been passed, for example, in New York City. Many other chemicals used in the petroleum industry have inherent toxic qualities of the same magnitude, yet are not so well known.

In regard to toxicology, there

Comfortable

Knit-lined PIONEER Stanzoil®

INDUSTRIAL GLOVES

At home a dog offers its owner a daily example of real comfort. PIONEER's objective in designing Stanzoil Duplex Industrial Gloves is to give those who wear them the same kind of comfort at work. For comfortable hands are busy hands, and protected hands are healthy hands.

NL-34 Duplex is a lightweight elastic knit-lined glove of neoprene with straight fingers and non-slip grip. Small, medium and large sizes in 10½" lengths.

Where comfort, maximum protection, tensile strength and abrasion, tear, aging, flame and heat resistance are important, and a safe non-slip grip necessary . . . where resistance to alcohols, acids, bases, oils, amines, greases or ketones is essential . . . where all these specifications form the basis for your buying decision, there's only one answer . . . PIONEER's Neoprene Stanzoil Duplex Gloves.

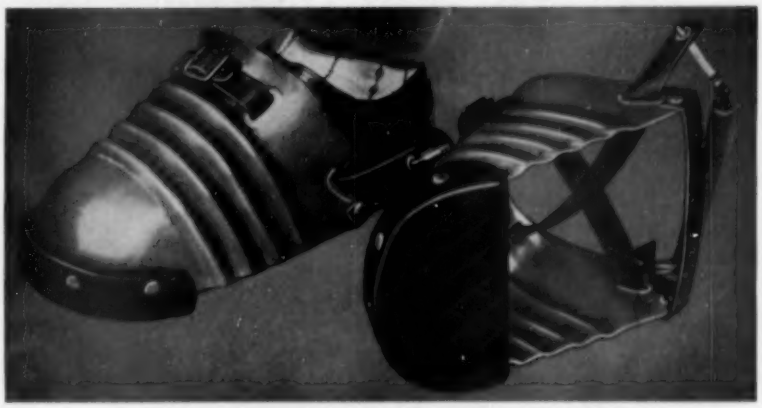
Pick the best, most economical glove for the job from 32 PIONEER styles (including neoprene, rubber and plastic gloves), weights, sizes, and colors shown in the "PIONEER Industrial Glove Catalog."

the PIONEER Rubber Company

237 Tiffin Road, Willard, Ohio, U. S. A.

Quality Gloves for over 35 Years

FOOT-TOE-LEG Protection by "Sankey"



"SANKEY" IMPROVED FOOT GUARD

The metal shield (above) is designed to furnish a maximum amount of protection to the entire front of the foot—not merely the toes alone, but also to the instep against hazards from falling, rolling or flying objects, or from accidental tool blows.

- Absolute freedom of leg motion, utmost protection and comfort come with the leg-contour shaped "Sankey" fibre shin guard (right).
- Fibre knee-shin guard (right) provides flexible knee movement on jobs with both knee and shin hazards.

For more information write today

ELLWOOD SAFETY APPLIANCE CO.

219 SIXTH ST., ELLWOOD CITY, PA.

Got
DUST STORM THROAT?

YOU NEED A . . .
DUPOR No. 4

The respirator that's made to order for protection against dust, fumes and paint spray! Has everything, and more than you will find in units costing twice the price! Double filters; soft rubber face mask; sanitary face cloth; exclusive Dupor valves for controlled breathing; panorama vision! Economical protection that you cannot afford to be without! Write for sample, $2.00 postpaid!

H. S. COVER, SOUTH BEND, IND.
"Respirators for Industry since 1894"

Stop Insect Bites
with "6-12" Insect Repellent

Workers swatting insects can't keep their minds on the job. The result? Production drops and accidents rise.

Why run this risk? Protect outdoor workers from mosquitoes and black flies, with "6-12" Insect Repellent. It's available in gallon cans for use in handy liquid dispensers, or in individual 2-oz. bottles and 1-oz. sticks. Costs less than a penny a day per user.

Write today for free samples and name of nearest supplier.

If they See it...

THEY'LL USE IT. Place these handy "6-12" Insect Repellent dispensers around the plant near the outdoor work areas.

Consumer Products Department
CARBIDE AND CARBON CHEMICALS COMPANY
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street, New York 17, N. Y.

Please send me a free sample of "6-12" Insect Repellent: ☐ Stick ☐ Liquid

Name.....Title.....
Firm.....
Address.....
City.....Zone.....State.....

are three ways in which a substance can cause adverse effects upon man:

1. It can be ingested or swallowed.
2. It can be harmful by direct contact with the skin or parts of the body.
3. It can be inhaled as a gas, vapor, mist or dust.

Ingestion

Fortunately, petroleum materials are not commonly or intentionally taken internally and therefore, trouble from this is rather rare in a refinery, although it does occasionally occur unknowingly. I recall watching a worker who had been complaining of stomach trouble, whose duties involved the compounding of litharge or lead oxide in a doctor solution—this man proceeded to empty the bags of litharge into an outdoor mixing tank and because of the dust and mists generated he correctly wore a respirator.

Of course, his hands were covered with lead oxide, and to my amazement, the first thing he did when he came down off the catwalk was to take an orange out of his lunch box which he started to peel and eat—probably one of the most effective ways to get lead poisoning.

Unfortunately, when petroleum products get into the hands of customers, ingestion is more frequent, usually by small children whose parents carelessly leave products within easy reach. You know that every year there are fatalities reported from children drinking kerosene. We have had hurry calls from doctors involving children drinking penetrating oil and fly sprays. Some times adults are even worse, as there are many cases of anti-freeze poisoning, drinking of brake fluid, and one I recall of our radiator flush which contains muriatic acid and chlorinated hydrocarbon. This product is fully labeled, including skull and cross bones.

It should be emphasized that hardly a substance exists that is not capable of producing effects on the human body if taken in sufficient amounts or under the wrong circumstances. Even common table salt, if used in sufficient quantities, is toxic. It is reported

that many years ago the Chinese used table salt as a means of committing suicide. Every chemical substance, therefore, has a non-toxic dose and a toxic dose for man. This can be illustrated by the following data on a widely used commodity, shown in Table I.

Skin and Body Contact

Approximately 60 per cent of all complaints received by our department are concerned with dermatitis and skin irritations resulting from contact with petroleum materials. By far, the majority of these complaints are from customers so this subject is very important in the marketing of petroleum products.

Cases among our employees or in our refineries are few when compared with those among industrial users of petroleum products, and it is believed that the reason for this is due mainly to the degree or extent of contact. In the petroleum industry skin contact is not generally experienced to the extent that it is, for example, in the metal working industries where a daily eight hour skin contact with cutting oils often takes place.

It is definitely established that skin is not an impermeable barrier to chemical substances, and it is increasingly important as a route of absorption for many materials. Action of chemicals on skin may be local, resulting in dermatitis. Examples we are familiar with are kerosene, cutting oils, etc., or a chemical may be absorbed through the skin and cause damage to blood or internal parts of the body. Lead tetraethyl, as an illustration, does not affect the skin or cause dermatitis but can penetrate the skin and cause internal poisoning.

Regarding external or local skin effects, chemicals may be classified either as primary irritants or sensitizing agents. A primary irritant is a chemical that may cause dermatitis in individuals frequently after only one contact. They may have a strong chemical action, such as acids, alkalis, amines, etc., or they may have a weak chemical action but require prolonged contact to cause dermatitis. Most petroleum hydrocarbons are primary irritants but

Klear-Vu Safety Mirrors are the answer to the dangerous blind corner problem in your plant or warehouse. They are also adaptable for outdoor use in your parking lot, loading dock area or other points where traffic converges.

Mounted at cross aisle intersections, entrances and exits at a height of 8 to 10 feet, Klear-Vu Safety Mirrors clearly reflect oncoming intersection traffic to both power truck operators and pedestrians.

Style	No.	Dimensions
Circular convex	120	12" diam.
Circular convex	180	18" diam.
Circular convex	240	24" diam.
Flat rectangular	918	9" x 18"
Flat rectangular	1640	16" x 24"

Available in either convex or flat glass styles, the mirrors are easily installed and quickly adjustable to any desired angle.

LESTER L. BROSSARD CO.
540 N. MICHIGAN AVE., CHICAGO 11, ILL.

Write for Bulletin.

ALL THE SAFETY OF A STAIR

CHOOSE FROM 115 MODELS TO MEET YOUR EXACT NEEDS!

Only Ballymore ROLL-OR-GRIP all-welded-steel ladders assure you of *just* the right portable safety stair for each need. A standard size range from one to twelve steps; a choice of three safety treads (expanded steel lath, steel grip-strut, or rubber-clad steel plate); optional hinged shelves or removable baskets; and a wide choice of widths within each size—these *extras* add convenience to the superior safety features built into every Ballymore — the original — safety-step ladder.

BALLYMORE Safety-Step LADDERS

Factory-trained representatives in principal cities

To: BALLYMORE COMPANY, WAYNE 17, PA.
( ) Forward free catalog of Safety-Step Ladders.
( ) Have representative call to survey my safety-ladder needs.
Name _____ Title _____
Company _____
Address _____

Now! for greater safety

New Safety GRIP-STRUT stair treads custom made to your exact size . . . Here for the first time is a really SAFE stair or ladder step, combining the proven features of Safety GRIP-STRUT material with a double locked carrier plate to provide additional safety over present types.

Made to your own individual size at the factory, the cost is amazingly low . . . you can buy a standard 18" stair tread in lots of 50 for $2.40 each. Prices proportionately lower in greater quantities.

Distributors in all principal cities. Consult your classified telephone directory.

GRIP-STRUT division
The Globe Company
Manufacturers since 1914
4018 S. Princeton Ave. • Chicago 9, Illinois

WHEN LIGHTS GO OUT EXIDE® LIGHTGUARDS® GO ON INSTANTLY...AUTOMATICALLY!

NEW MODEL M

Whenever normal lighting is interrupted—no matter what the reason—you get adequate emergency lighting INSTANTLY. Your customers and employees are safeguarded against injuries; property damage, pilferage, loss of process control is minimized. Exide Lightguards are UL-approved and can be plugged in anywhere. Operates instantly—each lamp illuminates up to 10,000 sq. ft. Exide battery in one lamp unit provides power for more than 8 hours of continuous lighting. Once normal power is restored, automatic controls recharge the dependable, long-life, trouble-free Exide battery.

WRITE for facts on why Exide Lightguards guarantee more protection for every dollar you invest in such equipment.

Exide INDUSTRIAL DIVISION,
The Electric Storage Battery Co., Philadelphia 2, Pa.

are classed in the latter category in that prolonged contact is usually required to cause irritation.

Sensitizing agents, on the other hand, are chemicals that are innocuous to most skin but capable of producing dermatitis in a few susceptible individuals following repeated contacts over a long period. Sensitization may require weeks, months or even years of contact with the material before dermatitis develops.

As mentioned above, the petroleum industry is now handling large quantities of chemical additives and inhibitors, many of which are strong primary irritants and very active chemical compounds. By nature, inhibitors usually have to be very potent chemicals because while they are used in very low concentrations, they exert a powerful influence on the characteristics or performance of the product, and many of the inhibitors are just as potent towards man.

One very active class of inhibitors are the amines and substituted amines, and we are particularly concerned about them because they are very damaging to the eyes, and a splash can readily result in blindness. The amines are usually strong smelling caustic liquids, insoluble in water, hence difficult to remove by washing. They can cause severe eye burns and necrosis of eye tissue. In addition, most amines are readily absorbed through the skin, and even low quantities may cause internal damage and death.

Employees should, of course, be fully alerted as to the hazards of such materials and should be educated to the use of protective goggles, gloves and aprons.

The foregoing applies to concentrated or undiluted inhibitors. Finished petroleum products should and usually do contain such a small quantity, and the inhibitor is so diluted, as to result in practically no more harm in the finished product than there would be from the straight mineral oil itself.

Industrial dermatitis cases sometimes result in erroneous conclusions as to their cause, even by those who should know better. I recall the case of a young man

who worked in a gasoline station and developed a severe dermatitis. He went to a physician who made patch tests on him and found he had a sensitivity to special gasoline but no reaction to regular gasoline.

Apparently, the physician had heard special gasoline contains a lot of lead because the case was diagnosed as resulting from an excess of lead tetraethyl in the special gasoline. We thought this strange because while we all know that lead tetraethyl is a violent poison and can be absorbed through the skin, it is not a primary skin irritant and has never been known to cause dermatitis.

A review of records of gasoline shipments into the particular area showed the regular gasoline actually contained the same or sometimes more lead than the special gasoline, clearly proving that lead tetraethyl was not to blame, but that some other material was responsible.

Inhalation

Of the three avenues by which chemicals can be taken into the body, inhalation probably has received by far the most study and investigation because it is the most important consideration in industrial health. The vast amount of research on the inhalation of materials has resulted in the publication of very useful data on safe human exposure levels known as threshold limit values, or maximum allowable concentrations. The list is compiled annually by the American Conference of Governmental Industrial Hygienists and is published by the American Medical Association. It tabulates the maximum amount of the various materials workers can safely be exposed to for an eight-hour working day without injury to health.

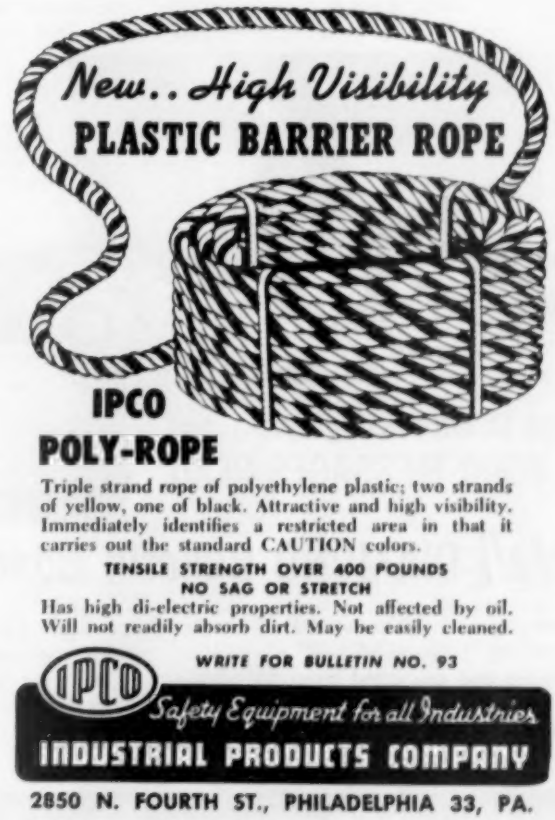
A few of the materials encountered in the petroleum industry are listed in Table II.

TABLE II

Gases and Vapors

Substance	*PPM*
Benzene (benzol)	35
Carbon dioxide	5000
Carbon monoxide	100
Carbon tetrachloride	25

New
DRY TAMP
PERMAMix Floor Patch
Don't stop traffic to repair floors—use Permamix, the new all-temperature DRY TAMP floor patch.
DRY TAMP MEANS SPEED • No sticky mass to dig out of the drum or to handle • Permamix dry pours • sets instantly • feather edges perfectly • no production delays • non-skid surface.
ALL TEMPERATURE • Won't freeze • can be stored or used in any temperature • will store indefinitely • a stock room item • will not "set" in drum whether open or covered. Mistakes just can't happen. Tamp in place and traffic rolls.
CUTS MAINTENANCE COSTS on concrete, brick, tile or asphalt floors • no special equipment or skill needed • a one man job • comes in durable 50 lb. net wt. fibre drums • solve your floor patching problems for good.
Write for Details Now!
PERMAMIX CORPORATION
155 W. WACKER DRIVE
CHICAGO 1, ILLINOIS


New.. High Visibility
PLASTIC BARRIER ROPE
IPCO
POLY-ROPE
Triple strand rope of polyethylene plastic; two strands of yellow, one of black. Attractive and high visibility. Immediately identifies a restricted area in that it carries out the standard CAUTION colors.
TENSILE STRENGTH OVER 400 POUNDS
NO SAG OR STRETCH
Has high di-electric properties. Not affected by oil. Will not readily absorb dirt. May be easily cleaned.
WRITE FOR BULLETIN NO. 93
IPCO
Safety Equipment for all Industries
INDUSTRIAL PRODUCTS COMPANY
2850 N. FOURTH ST., PHILADELPHIA 33, PA.

I KNOW I'M SAFE... with WOODEN SOLES!

They INSULATE
They PROTECT
They are PUNCTUREPROOF

HOT FOOT SANDALS

No. 504-S
Steel Toe Shoe

One costly Foot Accident could have paid for
1000 Pairs
of Wooden Soles.
Reece has a shoe or sandal to fit your needs.
Write for Catalog

No. 351
Strap-on
Sandal

REECE WOODEN SOLE SHOE CO.

There is no substitute for Reece Wooden Soles

DEPT. N-S-4-55 COLUMBUS, NEBRASKA

Diamond Bulletin Boards are available in single and double units.

To stop those passing eyes...and
GET YOUR MESSAGES READ

Install DIAMOND Bulletin Boards

When you install Diamond Bulletin Boards you are setting up lasting "message centers" where your messages are easily readable and protected from the elements. Employees can read them at any time because Diamond Bulletin Boards are illuminated and ventilated so that the glass will not fog.

Write for further information and prices.

SAFETY FIRST SUPPLY COMPANY

425 MAGEE STREET, PITTSBURGH 19, PENNSYLVANIA

Gasoline	500
Hydrogen sulfide	20
Naptha (petroleum)	500
Octane	500
Sulfur dioxide	10

Toxic Dusts, Fumes, and Mists

Substance	*Mg. Per Cu. M.*
Iron oxide fume	15
Lead	0.15
Sulfuric acid	1

Mineral Dusts

Substance	*MPPCF*
Asbestos	5
Dust (nuisance, no free silica)	50
Silica	
high (above 50% free SiO_2)	5
medium (5 to 50% free SiO_2)	20
low (below 5% free SiO_2)	50

These values are based on the best available information from industrial experience, from experimental studies, and, when possible, from a combination of the two. They are not fixed values but are reviewed annually by the Committee on Threshold Limits for changes, revisions, or additions as further information becomes available. Threshold limits should be used as guides in the control of health hazards and should not be regarded as fine lines between safe and dangerous concentrations. They represent conditions only within which it is felt that workers may be repeatedly exposed, day after day, without their health being adversely affected.

I cannot overemphasize the importance of the threshold limit values. I believe that every safety man should be familiar with them and have copies of the complete table, because they have been incorporated in state codes and have the force of law in many states, and therefore, must be complied with. So far some 19 states have written threshold limit values into their laws and often management is not aware of such requirements but would be in a vulnerable position if trouble resulted from excessive exposure to any of the materials. Usually it is up to the safety people and the industrial hygienists to alert management to the existence of these codes and to institute measures for the measurement of air contaminants so as to insure compliance.

Even gasoline has a maximum safe level which is 500 parts per

million. The result of exposure to concentrations greater than 500 ppm is shown by the following:

TABLE III—GASOLINE EXPOSURE

Symptoms: *Headache, irritation of eyes and throat, dizziness, nausea, loss of conciousness, death.*

	Parts Per Million	%
Maximum allowable concentration for prolonged exposure	500	0.05
Slight symptoms after several hours	1000	0.1
Maximum concentration tolerable for 1 hr.....	5000	0.5
Dangerous for short exposure	15000	1.5
Fatal for short exposure..	25000	2.5
Lower explosive limit.....	14000	1.4

Product Labeling

One very important function of the industrial hygienist is in regard to precautionary labeling of product. This is receiving more and more emphasis as state after state passes labeling regulations. The most recent is the State of New York where the Council on Public Health passed labeling regulations which became effective August 24, 1954, as Chapter IX-A of the New York State Sanitary Code. These labeling regulations have the force and effect of law and require precautionary labeling on any product which entails a hazard in a reasonably anticipated use. A hazard is defined as:

The risk of injury or illness which may be encountered during or as a result of any reasonably anticipated type of handling or use of a substance, or during its specified use, if any, by reason of the toxicity of the substance through ingestion, inhalation or absorption through the skin, or due to its corrosiveness or irritating properties, or because of its flammability or explosiveness.

Similar labeling regulations already exist in California, Illinois, Oregon, and the Territory of Hawaii, and are in the making in New Jersey, New Hampshire, Ohio and Rhode Island. More can be expected. Fortunately, most state regulations are guided by recommendations of the Manufacturing Chemists' Association, Inc., and with some few exceptions, conformity in one state results in conformity in other states.

It is recognized that, as a rule, labeling regulations of many products are advisable and result in safer handling of the material

3 REASONS
TRIPL-PALM
COATED
WORK GLOVES
CUT GLOVE COSTS
TRIPL-PALM design eliminates the "failure points" of ordinary work gloves, resulting in multiplied glove life . . . greatly reduced glove costs.
Knit-wrist or gauntlet style with coated or "free-breathing" backs. Ask your jobber or write for information.
THE SURETY RUBBER CO. Carrollton, Ohio
In Canada: Safety Supply Co., Toronto
EXTRA-HEAVY COATING FOR EXTRA LONG WEAR . . . and greater palm comfort.
NO SEAM HERE TO RIP OUT . . . Wing thumb (one-piece palm and thumb) construction for multiplied service life.

Here is how to . . . Make Your Own
SAFETY GUARDS
with
H & K
Standardized Parts
This bulletin illustrates a simple and inexpensive way of constructing your own guards for moving parts, such as: flywheels, gears, and belts, and for individual punch press dies. Only ordinary tools, such as a hack saw, hand snip, hammer and screw driver are needed. When properly constructed, guards made of sturdy H & K parts will comply with State and insurance requirements and will conform with American Standard Safety Codes.
Write for your copy of this valuable bulletin
The Harrington & King Perforating Co.
5645 Fillmore Street, Chicago 44, Illinois
114 Liberty Street, New York 6, N. Y.

WORK SAFELY
in flame and heat

Wear Steel-Grip Aluminized Asbestos Safety Apparel

Aluminized asbestos reflects up to 95% radiant heat, and won't burn. Steel-Grip has tailored this material into well-fitting, properly proportioned safety garments that protect workers while allowing full freedom of movement. Unexcelled for hot-metal handling and processing. Every yard of cloth has been carefully selected for uniform quality. Each garment bears the Steel-Grip label, your guarantee of wear and satisfaction. Available as coats, pants, aprons, sleeves, leggings, spats, gloves, mitts and curtains. Many uses in industry. Many advantages to users. Write for test swatches or trial garments.

We manufacture a complete line of guaranteed, tested and approved safety apparel in leather, duck, Perma-Proof materials, asbestos, wool, Dymel cloth, Jaxcolite-coated materials, aluminum-coated materials, etc. . . . known the country over for quality and dependability. Write today for catalog.

To be sure of the Genuine

Steel-Grip
INDUSTRIAL
Safety Apparel
TRADE-MARK

Demand this Trade Mark

INDUSTRIAL GLOVES COMPANY
a corporation
1704 Garfield Street, Danville, Illinois
(In Canada: Safety Supply Co., Toronto)

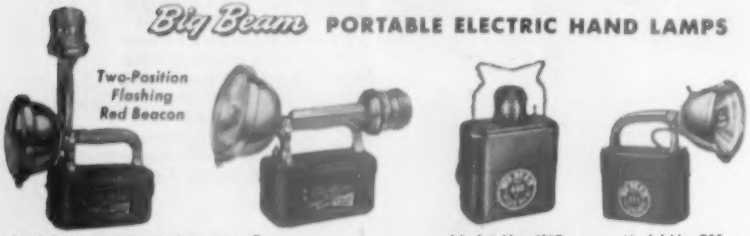
Big Beam AUTOMATIC EMERGENCY LIGHTS

GUARD AGAINST
The Hazards of Sudden Blackouts

Big Beam Model 2ATW with storage battery and built-in charger that keeps battery fully charged at all times. Variety of models to choose from.

Sudden blackouts breed confusion, panic, property damage, bodily injury – even loss of life. You can have completely dependable protection against sudden blackouts by installing Big Beam automatic emergency lights. (Plug into any convenient lighting outlet.) Then whenever regular lights fail, your Big Beam will provide hours of bright, safe illumination.

Big Beam PORTABLE ELECTRIC HAND LAMPS



Model No. 164 (Sealed Beam)
Model No. 104 (Standard Bulb)
BEACON LAMP
Model No. 408F Flare and Lantern
Model No. 211 1500-Foot Beam

Write for Complete Information —

5071

U-C LITE MANUFACTURING CO. 1027 W. Hubbard St. Chicago 22, Illinois

IN CANADA: Bernard Marks & Co. Ltd., 459 Church Street, Toronto 5, Ont.

by customers, but it requires extensive work, knowledge of product and toxicological information to determine what products must be labeled and how they should be labeled. In our company's operations, we use somewhat over 2000 basic chemicals or raw materials and manufacture some 3500 finished products which must be reviewed individually.

To illustrate, the following are just a few of the hazardous materials that are encountered in petroleum refinery operations or that might be compounded into finished products:

Respiratory Irritants
Acrolein
Acetaldehyde
Aluminum Chloride
Ammonia
Asbestos
Ditertiary butyl para cresol
Dusts, physiologically inert, general
Dusts, attapulgus clay
Dusts, bauxite
Dusts, catalyst
Formaldehyde
Fluorides
Furfural
Inhibitors
Lime
Nitrogen oxides
Ozone
Pine Oil
Silica
Smoke
Sulfur dioxide
Welding fumes
Toxic Materials
Aniline, liquid
Aniline, dye
Benzol (benzene)
Cadmium
Carbon Monoxide
Chlorinated hydrocarbons
Chrome compounds
Cobalt, metal
Hydrogen sulfide
Inhibitors
Lead, metal & fumes
Lead, oxide, litharge
Lead, soaps
Lead, tetraethyl
Manganese
Mercury
Methanol
Radioactive materials, general
Toluol (Toluene)
Xylol (Xylene)
Zinc
Skin Irritants
Acids—all kinds
Amines
Benzol (benzene)
Caustics
Chromium Salts
Coal-tar Compounds
Cobalt, metal and compounds
Dyes
Inhibitors

Nickel salts
Oils, general
Oils, high boiling from Cat. & steam cracking
Oils, insoluble cutting
Phenol
Pitch
Solvents
Ultra violet radiation
Wax, untreated

The petroleum industry has made remarkable progress in the development of new and better products and in improving processing operations. Accompanying this progress have been new problems of toxicology and health engineering which must be studied with the same zeal as other types of research. The advent of catalytic cracking resulted in the production and handling of aromatic hydrocarbons, and of importance to us, health problems long associated with the coal-tar industry. The use of new chemical catalysts, inhibitors, and other chemical compounds involve health problems that the chemical industries have faced for years.

To illustrate this trend we need only look at the modern gasolines, fuel oils and motor oils. Years ago motor oils were practically 100 per cent petroleum with little, if any, additives; today they contain up to 15 to 20 per cent of chemicals, additives and inhibitors, and this trend will continue because there is no question that additives contribute much to improve performance characteristics.

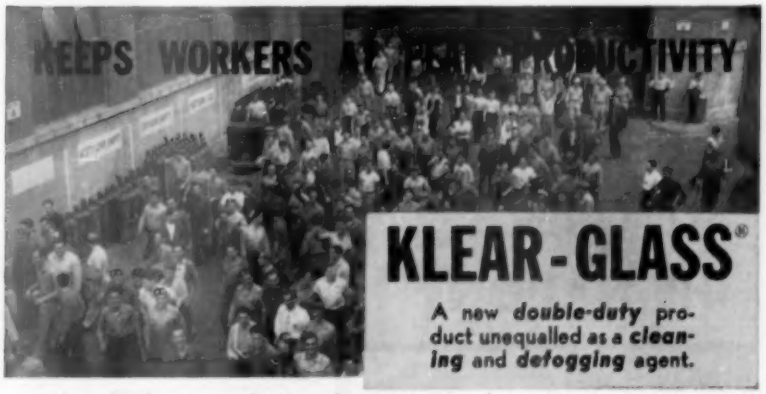
Every step in this direction, however, does pose new problems of health and safety among our plant personnel and our customers.

Fork Trucks

—From page 35

er catalytic muffler—on mining and construction equipment, may add impetus to two growing trends in mining—the shift toward trackless mining and the increasing use of diesel equipment underground.

The Coplay Cement Company, Coplay, Pa., has been using a



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A new *double-duty* product unequalled as a *cleaning* and *defogging* agent.

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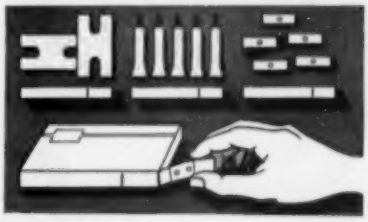

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California

diesel-powered tractor shovel—an International Lodover—in its limestone mine without complaint from or ill effects to people working underground. This has been possible by equipping it with a Dieseler catalytic exhaust.

Increasing interest is also shown in the use of catalytic exhausts on LPG-powered equipment. One of the advantages of LPG is that it produces less carbon monoxide than regular gasoline. Some LPG-powered fork trucks have been sold on the basis that they are safe for indoor operation. The fact is, however, that LPG engines do create some carbon monoxide.

In a thorough field test, PictSweet Foods, Inc., found that the catalytic exhaust is as efficient in eliminating noxious fumes from LPG as from gasoline engines. It was able to use trucks powered by both types of engines in interconnected cold storage rooms with no special ventilation. In rooms with only one entry and, therefore, no circulation, periodic purging is sufficient to remove the small amount of exhaust impurities which might accumulate.

Of PictSweet's OCM-equipped fork trucks, five are Clark trucks fueled with propane and one is a Transitier fueled with white (unleaded) gasoline. PictSweet has found that propane causes less wear on the engines than white gasoline.

The exhaust fumes from the gasoline-powered truck were analyzed by the State of Oregon's Department of Accident Prevention. The carbon monoxide was declared well within the safe range. The efficiency of the catalytic exhaust was further demonstrated by the fact that workers in the processing building where fumes were quite heavy and objectionable before it was installed, no longer complained of exhaust fumes.

Most of the leading fork truck manufacturers now make catalytic exhaust available as option-

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DUSTFOE Airline RESPIRATOR

- Approved for protection over prolonged periods against harmful or objectionable atmospheres containing welding or cutting fumes, paint spray vapors, fumes from burning metals and toxic dust.
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al equipment, installed at the truck factory.

Where firms already have gasoline trucks in operation outside their buildings it is an obvious advantage to use the same equipment inside the buildings. This saves investment in new equipment and eliminates the need to train personnel in the maintenance and operation of the new trucks. It also makes for flexibility in use of the entire fleet inside or out.

Catalytic exhausts permit present gasoline trucks to be converted for safe indoor operation at great savings. The cost of converting a truck is a matter of one or two hundred dollars, compared to thousands of dollars for new equipment.

Proved Effectiveness

Effectiveness of the unit is shown by test data. At idle speed, 97.3 per cent of the monoxide was converted into carbon dioxide; at governed speed, where less carbon dioxide is created, conversion was 92.2 per cent. A good average for units installed in the field is 95 per cent conversion. Clean-up of exhaust hydro-carbon is equally efficient.

The slight trace of original contaminants reaching the atmosphere is far below the U. S. Public Health Service tolerance of 100 parts per million for eight-hour exposure and 400 parts per million for one hour exposure.

The success of the catalytic exhaust rests primarily on its ability to rid engine fumes of carbon monoxide and hydrocarbons and thereby eliminate danger and annoyance. Other features are:

1. OCM mufflers can be easily installed within the space limitations of most internal combustion equipment for an existing acoustical muffler or as a direct attachment to the engine exhaust manifold. The units provide a high degree of acoustical muffling.

2. They are designed to have less back pressure than standard mufflers and, therefore, increase engine efficiency in some instances.

3. Catalytic exhausts are practically maintenance free. The main requisite is that the engine itself be in good operating condition.

—Next page

keep them on the job . . .

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4. The catalytic element is long-lived—at least 2000-2500 operating hours in most cases. The catalyst-coated cartridges can then be replaced on an economical exchange basis.

5. Cost is $100 to $200.

Development of the Dieseler for 4-cycle diesel engines has opened up large new fields for diesel-powered materials-handling equipment that operates consistently at 60 per cent of rated load or more. In the past, the pungent, disagreeable diesel fumes have limited such equipment to outdoor operation.

Early applications for the Dieseler have been on underground mining equipment and on earthhauling and construction units. In one case the equipment works at dead-end headings, 1000 feet from the mine entrance, with no trouble from odors or carbon monoxide.

Four-cycle diesels operating at 60 per cent of rated load develop exhaust temperatures high enough to do a 60 to 85 per cent clean-up job on hydrocarbons and 90 per cent on carbon monoxide. This reduction is enough to eliminate the annoyance factor of the exhaust.

Heart of the catalytic exhaust is the Oxycat, a cartridge containing 71 porcelain rods coated with 0.003 inch of catalytic platinum and alumina alloy. Each cartridge measures roughly 5 by 3 inches. The rods are all teardrop shaped in cross section to minimize back pressure. They are staggered in position to present maximum surface for combustion of the carbon monoxide and other harmful vapors—mostly hydrocarbons — as the exhaust flows across the rods.

The catalytic reaction which oxidizes the unconsumed carbon monoxide and hydrocarbons takes place at the surface of the rods. The catalyst, by its presence in the muffler, combines the contaminants with oxygen at a lower temperature than is ordinarily required to cause the reaction. Thus the catalyst permits combustion of the pollutants at temperatures well within the range of the exhaust gases.

Catalytic mufflers are made by

SELF-STICKING SIGNS

A complete line of Self-Sticking Accident Prevention Signs in wordings and sizes recommended by ASA and NSA is now available from the W. H. Brady Co. Stocked in sizes 5"x14", 3½"x14", 5"x9", 2¼"x9" and 2¼"x4½". Stick to any surface. Are put up fast by unskilled help without nails, screws, tools. Write for 16-page Catalog and free usable samples.

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Industrial workers are far more efficient if they can do their work without being forced to stop frequently to keep hot weather perspiration from running into their eyes.

Sellstrom recommends that you order at once your 1955 supply of the No. 440 "Absorband" felt sweat bands. They are made from the finest absorbent white felt, treated to take in more perspiration than ordinary felt. Absolutely free from all substances to which people might be allergic.

When saturated with perspiration, it can easily be rinsed in water, wrung out and used again. Before using this sweat band, it should be dipped into water and squeezed out as it will absorb more perspiration moisture when it is wet. Each "Absorband" is in an individual sanitary envelope.

During the past few summers the sale of this sweat band has grown enormously. Each year former buyers repeat while there are always a number of new users. This is natural as the use of "Absorband" greatly increases working efficiency and comfort. Because of the low cost, each "Absorband" can actually pay for itself half-a-dozen times a day. Production is materially increased since workers do not stop every few minutes to use a handkerchief to wipe the perspiration from their forehead. "Absorband" should be a hot weather "must" in every industrial plant.

If your dealer does not handle this "specialty," write us direct for prices and a free sample for test purposes.

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MANUFACTURING COMPANY
Eye and Face Safeguards Designed for Utmost Comfort
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encasing the required number of catalytic cartridges inside an explosion-proof steel shell. For gasoline or LPG engines one cartridge is used for about every 35 cubic inches of piston displacement. For a diesel, the number of cartridges needed is determined by a formula based upon piston displacement and maximum speed at maximum horsepower.

Catalytic exhausts for fork lift trucks usually contain three to six cartridges; smaller models for powered floor sweepers contain two or three. Dieselers are somewhat larger—in some cases containing 10, 16, or even more, catalytic units.

In addition to catalytic sections, the basic attachment for gasoline and LPG engines contains an air intake assembly at the inlet end of the muffler. This assembly — comprised of a venturi nozzle and air filter—sucks in sufficient air to provide oxygen for the combustion of engine contaminants.

Operation

Users find conversion to white gas relatively simple. No major engine adjustments are necessary. Oxy-Catalyst experts recommend that the user first change the crank case oil, drain the gasoline tank of leaded gas, then run the engine on white gasoline for about 50-75 hours to get rid of all traces of lead before attaching the catalytic exhaust.

In operation from a cold start, the catalytic muffler usually requires a three to five minute warmup to reach a condition of optimum clean up. Standard procedure is to start the engine and run it at ¾ throttle for a few minutes to bring catalyst temperature up to the required 500 F. At this point the carbon monoxide begins to burn and in so doing releases enough heat energy to raise catalyst temperature high enough to consume the hydrocarbons.

Catalytic mufflers for both gasoline and LPG equipment come with a pyrometer indicator — a handy dashboard device that helps the operator monitor the performance of his catalytic muffler and of his engine. The dial indicator, connected to a thermo-

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A special process was used to produce this leather which resulted in a distinctive green color without the use of dyes or color pigment. The green color and our special insert in each pair of work gloves is your guarantee that Gebhardt's *"Special Tanned"* leather was used in the glove.

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couple inside the catalytic muffler, gives a reading proportional to the temperature of the muffler reaction.

The dial itself is divided into three quickly read sections—red for "Danger" on the left, green for "Safe" in the center, and yellow for "Caution" on the right.

The dial is so calibrated that when the catalyst and truck engine are functioning efficiently the needle lies in the green zone. Thus, at start-up, the truck operator warms his engine up until the needle reaches the green zone. At any time during operation, should the muffler cool off, the needle will drop below the green zone. This is a sign to the operator that he should accelerate his engine for a few minutes to bring the muffler to proper clean-up temperature.

At the end of useful life, when the muffler is no longer removing a major percentage of the engine contaminants, the temperature inside the muffler drops off. At this time the dial needle also drops from the green to the red (Danger) zone and stays there. This indicates that the catalytic elements should be replaced.

The catalytic temperature can be too high—and this is usually a sign of overloading or inefficient engine operation. Thus when the dial needle climbs into the yellow zone the smart fleet operator can save fuel and engine maintenance by getting the machine checked.

Excessive temperature indicates that the catalyst is burning more contaminants than normal. Since the muffler burns almost everything, any excess must result from overloading of the engine or operation of the engine on an excessively rich fuel mixture.

When the needle climbs to yellow, therefore, it may be time to check for poor carburetion, worn piston rings, sticky, warped or burred valves or fouled spark plugs.

The catalytic muffler thus acts as a built-in air-fuel analyzer that can bring appreciable savings in reduced fuel consumption and increased engine life.

The catalyst participates but is never actually consumed in the oxidation process. As a result, it has had extremely long life in many applications. One operator, for example, reports that his fork trucks have been operated more than 11,000 hours without changing cartridges.

In practice, replacement of the catalytic elements is recommended after 2000 - 2500 hours of operation.

Industrial Health

—From page 60

about the smoke nuisance until the London smog of December 1952 which caused the death of more than 4,000 people. The people were frightened at this for the first time.

As a direct result of this, the most recent of a series of government committees on inquiry into the nature, causes and effects of air pollution, following a whole dynasty of committees starting with 1819, was appointed in July 1953. Its first interim report, out-

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should combine in the campaign against

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by adding to your present procedure a simple accident *must* for determining intoxication.

The Harger Drunkometer, used nationally in industry, is the oldest and most widely used of the breath methods.

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lining the known facts but suggesting no remedy, was issued in November 1953 and it was greeted with a practically unanimous howl of derision by the popular press.

The final report appeared in November 1954 right at the beginning of the fog season. Probably mostly because the atmosphere of public opinion was peculiarly suitable at that moment, the report was received with very general public approval and a very general demand for action on it.

This report was based primarily on the continuing damage to health and danger to life which were going on all over the country and all of the time and on the economic cost which the committee calculated as approximately $15 per individual per year being spent directly and indirectly because of air pollution.

The report was concerned still primarily with smoke abatement. It was proposed that all legislation, national and local, should be combined into a new act to be called "the Clean Air Act."

All legislation regarding industry should be nation-wide in scope so there should be no question of simply removing potential industrial nuisances from one area to another. In Britain, as in this country, there are a large number of overlapping local authorities with differing attitudes and with local fears and antagonisms.

It proposed that heavy smoke should simply be prohibited and that it should no longer be necessary to prove that it was a nuisance. There should be no protected industries or processes and all smoking chimneys should be subject to challenge by qualified national inspectors.

It proposed to create a simple way of establishing smokeless zones, in which it is forbidden to burn fuel capable of producing heavy smoke, instead of each local authority having to secure specific parliamentary approval for such a zone.

A new kind of semi-smokeless zone, where smoke was to be reduced by 80 per cent and which could include a large amount of industrialized area not capable of being fitted into any smokeless zone, was invented. Because low volatile coals are scarce in England, gas and electrical heating are costly and all oil is imported, it does not seem practical to solve a large part of the smoke problem by the prohibition of smoke-producing fuels.

It was further proposed that each local authority be required to report annually on its smoke control activities and that a permanent smoke control council or clean air council be established to keep track of things and to make an annual report to the Parliament.

Although time since the report came out has been too short for any action, Sir Hugh believes that, in contrast to twenty and even five years ago, the odds are quite strong that effective action will follow. Public opinion, even in the best of causes, takes its own time to reach its boiling point and it seems to have reached it now in the case of air pollution control in England.

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S-2075—modified for horizontal installations
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S-2090—platform operated unit

For more information about Speakman LIFE-SAVER Emergency Showers, write for Booklet S-75.

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It waxes as it cleans!

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Sanax was developed to permit frequent cleaning of waxed floors *without washing away the finish* . . . and to eliminate waste in wax and labor. A neutral liquid soap with a wax base, *Sanax* not only quickly removes dirt, oil, and grease, but *leaves a thin film of wax.* In fact, regular use of *Sanax* to machine-scrub or damp-mop waxed floors *actually prolongs the life of the finish,* and thereby reduces refinishing costs on a year-to-year basis.

Like all *Finnell Fast-Acting Cleansers, Sanax* is specially designed for the greater speed of machine-scrubbing, and works as effectually in a *Combination Scrubber-Vac* as in a *Conventional Scrubber-Polisher.* And because *Sanax* is processed from pure vegetable oils, it's *safe for all floors.*

Find out how you can simplify and reduce the cost of caring for waxed floors. *There's a Finnell Floor Specialist nearby* to help you choose the waxes and cleansers that are *exactly right for your needs. Finnell* makes a complete line, so you can depend on unbiased advice. In fact, *Finnell makes everything for floor care!* For consultation, demonstration, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2204 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

- **A mild liquid wax-soap for machine-scrubbing or damp-mopping waxed floors**
- **Leaves a lustrous anti-skid protective finish**
- **Highly concentrated . . . economical to use**

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

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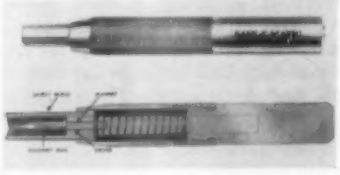
NEW SAFETY EQUIPMENT

Further information on these new products may be obtained by writing direct to the manufacturer or by circling the corresponding item number on the Reader Service Postcard.

Masonry Nail Driver

A new Safe-T-Matic nail driver has been developed for driving masonry nails into concrete, cinder blocks, concrete blocks, light and medium gauge metals quickly and safely.

This tool features a built-in permanent magnet which holds the nail in the correct position, and a sliding safety shield, which is said to cut working time 80% and eliminate the danger of flying nails.



Nails driven with the driver have strong holding power and do not require the use of star drills, plugs and screws. The tool takes masonry nails of ½ to 1⅛ inch length. It can be used for fastening clamps to cement or cinder block walls or cables, conduits, tubing, brackets, fixtures, bracing, cornices, gutters, leaders, etc.

Safety Nail Driver Corp., Clifton, N. J. (Item 1)

Face Shield

A new face shield with wide versatility has been designed, tradenamed "Monarch," providing protection against low impact exposures. The shield illustrated, one of four similarly designed, has a spark deflector and allows for the quick interchangeability of a general purpose window, a window for heat protection, or a special window for acetylene welding or scarfing.

The shields are made to withstand abuse, are light in weight and comfortable. Headgear is form fitting and offset-hinged at the friction joints. The rear headband section adjusts to anchor the shield with minimum pressure. Replaceable, non-wrinkling genuine leather sweatbands provide comfort. The

window support has snap fasteners to allow for replacement and ample clearance to permit wearing of prescription glasses.

The headband is equipped with a wide range quick ratchet headsize adjustment that is insulated from the wearer and fits all head sizes.

Fibre-Metal Products Co., Chester, Pa. (Item 2)

Loading-Dock Cover

Illustrated here is a sturdy metal and canvas collapsible door hood, designed to make any railway or truck loading dock draft free and and weatherproof. It was designed to help handlers of food perishables to conform with U. S. Pure Food Regulations pertaining to constant

cold temperature maintenance.

The simple construction of the loading-dock shield makes it practical for all industrial loading dock operations. It is custom designed to fit standard size rail or truck dock doors regardless of slight dimension variances, and an optional bottom cover is available if full four-side protection is desired. The shield holds taut when extended by means of high tension springs and folds flat out of the way, assuring full railroad or truck clearance requirements when not in use. Shields are fire, water and mildew resistant and the material is Underwriters Laboratories approved.

Frommelt Industries, P.O. Box 165, Dubuque, Iowa (Item 3)

Life Nets

Newly designed life nets with safety L & S section clamps are now being manufactured, constructed of ⅜-inch diameter pure manila rope with a reported breaking strength

of 1,350 pounds. The rope is chemically treated to make it water-repellent and mildew-proof. Border lines on all sides are ¾-inch manila rope. Nets are available with 4, 6, 8 or 12-inch squares, and are made to individual specifications for each job.

The patented intersectional metal clamp strengthens the net and makes every junction fireproof and waterproof, and keeps the net from curling and knotting. Should the net be dragged along the ground when not in use, the metal clamps prevent the rope from wearing.

Literature and samples of the net sections are available from the manufacturer.

E. D. Bullard Co., 275 Eighth St., San Francisco 3. (Item 4)

Hot Water Dispenser

An office-type water cooler which also dispenses hot water at the correct temperature for making instant coffee and other hot beverages has been announced. The new standard size unit, available in both pressure and bottle types is called the Oasis Hot 'N Cold water cooler.

The pressure model has an additional spigot for hot water as well as the conventional spout for cold drinking water. It has a hot water capacity of five quarts and a recovery rate of from 40 to 60 cups an hour.

The bottle type has two push-button faucets in the front of the cabinet and the same hot water capacity and recovery rate as the pressure model.

The hot water tank of 85/15 red brass has a 500-watt tubular type heater attached to the outside, and features a surface type thermostat which adjusts to 185 F. and prevents heater from burning out should storage tank run dry.

Freon 12 refrigerant, which is odorless, non-toxic and non-flammable is used in both pressure and bottle types.

Ebco Mfg. Co., Columbus, Ohio. (Item 5)

Safety Caps and Hats

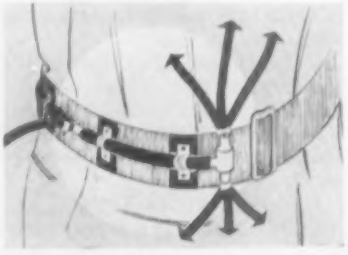
A new type safety hat featuring a geodetic suspension and pneumatic headband cushion has been announced by its manufacturer. The pneumatic headband cushion consists of a series of twelve vinyl plastic air cells, located between the sweatband and the shell of the hat. The headband is reported to resist and distribute the impact of lateral blows by the incorporation of small orifices between the air cells. When a blow exerts pressure on a given cell, air is forced into the adjoining cells, causing them to expand and hug the head, thus distributing the impact over a large area of the head.

The shell of the hat is molded of Fiberglas reinforced resins.

Willson Products, Inc., Reading, Pa. (Item 6)

Ventilation Belt

Users of protective garments will be interested in the new, lightweight ventilation belt recently introduced. "Flow-air" fittings securely anchored to the web belting are said to distribute air from an external source throughout the suit and carry away body perspiration, giving a cooling effect. Constructed to keep harmful substances out, they are also effective as heat insulators.



The belt weighs only 12 ounces and can be slipped on in less than 15 seconds, is adjustable to any waist size and rides easily just above the belt line. It comes fully equipped with a 30-inch length of hose for connection to source of pressured air.

Standard Safety Equipment Co., 232 W. Ontario St., Chicago 10. (Item 7)

Safety Goggles

A new chemical goggle designed for workers in dusty air or near splashing liquids has been developed. It is contoured and moulded from soft, flexible synthetic rubber to provide snug fit, protection and comfort. It is large enough to be worn over most glasses.

The wide transparent plastic window gives full width of vision and fits in deep holding grooves in the soft rubber frame. It can be replaced in a few seconds. On each side are baffled ventilator holes

which permit circulation of air and prevent fogging. The flat elastic headband is easy to adjust and holds the goggles securely in place.

Chicago Eye Shield Co., 2300 W. Warren Blvd., Chicago. (Item 8)

Tension Wire Stringer

The Pengo tension wire stringer for stringing overhead power line conductors under tension takes reels up to 69 inches in diameter, and any conductor to 556MCM ACSR.

The reels are not supported from a shaft through the center but are placed in a cradle of hard rubber tire rollers provided with brakes sufficient to keep the conductor from becoming slack between the reel and the first bull wheel. The conductor

follows the multigrooves on the aluminum bull wheels which are neoprene lined. After the proper number of turns around the two bull wheels the conductor pays out to the overhead line under tension. Both bull wheels are provided with standard disk brakes which furnish the braking power to keep the conductor under controlled tension at all times. The brakes are controlled separately by a hand crank device, to avoid the risk of failure inherent with any other type than manual control.

The model 5000 4-reel unit illustrated, fits most standard trucks or trailers. It is 7 feet 4 inches wide.

Peterson Engineering Co., Santa Clara, Calif. (Item 9)

Fiberglas Window Panes

"Flat Panes" are new shatterproof fiberglas factory window panes available in three colors — "Lite Rose," "Cool Green," and "Lite Blue"—each designed to solve a specific industrial lighting problem.

The colors are permanently built in, never require painting. According to the manufacturer, the panes are made by impregnating tough

fiberglas mat with colored polyester resins, and are practically indestructible. They are available in five standard sizes and can also be cut with standard tools to fit other sizes of sash, and are .080 in. thick.

As light rays pass through the panes they are deflected in all directions, eliminating glare and transmitting a properly diffused light throughout the interior. The panes will not crack, craze, warp, sag, buckle, rot or mildew, it is claimed.

Alsynite Co. of America, 4654 De Soto St., San Diego 9, Calif. (Item 10)

Sound Barrier Curtain

Reported recently is the development of a lightweight, retractable sound barrier curtain made of . . . flame-resistive and sound-reflecting material known as Bemisorb, a specially treated and coated burlap. It

can be used to reduce critical factory noise level at its source and can be installed anywhere in a factory to isolate machine and production noise and in areas that are potential fire hazards or otherwise dangerous.

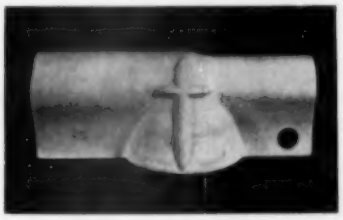
The new product, called TransWall, can be used to sub-divide an area into any number of independent units and is claimed to be easily adjustable.

TransWall curtains consist of 7 inch panel folds, chain-spaced to prevent complete extension and supported by steel top plates that operate on nylon wheels in an enclosed track. They are available in several colors.

Bemis Bro. Bag Co., 325 27th Ave. N. E., Minneapolis, Minn. (Item 11)

Insulator Hood

The "Style J" insulator hood will adequately cover a pin type insulator with a skirt diameter of ¾ inch and a height of 5½ inches. It has inward extending flanges to securely lock the hood to the underside of the porcelain skirt which prevents accidental dislodging. The hood will

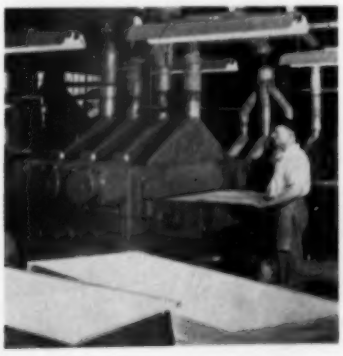


work equally well on either side tie or saddle tie insulators and can be used on either single or double arm construction. The wall and roof surfaces are of the same thickness as the style "F" hood and the dielectric properties are also the same.

W. H. Salisbury & Co., Morgan & Kinzie Sts., Chicago 22. (Item 12)

Endless-bed Sanders

The endless-bed sander illustrated extends out toward the operator.



Even the shortest pieces may be fed without getting the operator's fingers near the danger area. The use of four drums allows dividing the overall sanding load into smaller "bites" and obtaining a better finish.

Salem Machine Co., Rockford, Ill. (Item 13)

Dye Penetrant Kit

A new dye penetrant test to locate cracks in any solid material is now available in a packaged kit. Features include spray can sealing of messy constituents for rapid spray application to any area or remotely located part. The kit carries the trade-name Spotcheck.

The manufacturer suggests that the dye penetrant be sprayed on the clean surface to be tested. Then a cleaner is sprayed on the surface and removed by a quick wipe. An even coat of white developer is brushed on, and inspection follows in a few seconds. Cracks show up as bright red lines, and pores or leaks in tanks show as red spots. Non toxic.

Magnaflux Corp., 7300 W. Lawrence Ave., Chicago 31. (Item 14)

Aluminum Ladders

A new line of aluminum ladders, said to conform to currently accepted specifications for metal ladders, includes straight and extension ladders, scaffold planks and stages.

The new products have rung-to-side-rail connection in solid side rail design. Side rail sizes and shapes have been scientifically determined to give a uniform load carrying capacity in all standard sizes. Corrugated rungs are 1¼ inches in diameter. Heavy plated steel slide

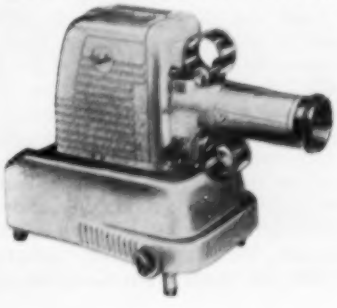
guides for the extensions are used at the top of the base and safety shoes and pulleys are supplied.

Scaffold planks and swing stages are said to be built with extra deep ladder frames and covered with a light weight formed aluminum decking.

Louisville Ladder Co., 1101 W. Oak St., Louisville 10, Ky. (Item 15)

Filmstrip Projector

The 500 watt fan-cooled single-frame stripfilm projector illustrated



has a 5-inch Luxtar F/3.5, coated anastigmatic lens, color corrected. Called the V-45, the projector is fan-cooled—hot air is forced away from the lamp and out of the projector housing.

It is made completely of die castings. Two switches offer "individualized" motor and lamp control. The lamp cannot be turned on unless the fan is running; the fan always cools the lamp down.

Viewlex, Inc., 35-01 Queens Blvd., Long Island 1, N. Y. (Item 16)

Emergency Light

Ray-O-Matic is a new emergency lighting unit designed to give protection against sudden power failures in elevators and other small areas. It plugs into the regular 110 volt AC circuit and furnishes instant

emergency lighting automatically whenever the regular source of power fails.

Ray-O-Matic will give 15 hours of continuous light or 25 to 35 hours of light if used intermittently. The head is adjustable to direct the light wherever desired. It can also be used as a headlamp and contains a carrying handle with the switch located for instantaneous operation. Operates on eight standard flashlight batteries or one 6-volt lantern battery. The body of the unit is finished in red baked enamel with chrome plated head.

Electric Cord Co., 195 Williams St., New York 38. (Item 17)

Valve and Flange Covers

Acid and caustic resistant valve and flange covers made of Dynel, a new synthetic fiber, are now available. They provide protection for workers against acid or chemical leakage according to the manufacturer, and are easy to install and store. Dynel covers conform with the contour of valve connections. They can also be laundered and reused. They are being marketed under the trade-mark ChemKovers

and are available in a wide range of sizes.

Carbide & Carbon Chemicals Co., Textile Fibers Dept., 30 East 42nd St., New York 17. (Item 18)

Explosive Disconnect

Integrated with the body of a standard electrical plug and receptacle, this new explosive disconnect is said to provide for the instantaneous opening of as many as 100 circuits on a non-shorting basis. Where desired, time delay up to three seconds can be incorporated. Although the action is not immediately repeatable, the unit can be connected, re-loaded and re-used

throughout a total of several cycles. Circuit configuration is limited only by the availability of standard plug and receptacle inserts.

The disconnect incorporates two primers and, when the circuits are to be opened, is fired by a simple, normally-open switching circuit.

Beckman & Whitley, Inc., 976 E. San Carlos Ave., San Carlos, Calif. (Item 19)

Rubber Stamp Pads

All rounded smooth edges offering protection against hand injuries are an outstanding feature of this new foam rubber stamp pad. According to the manufacturer, the flexible foam rubber surface makes "pounding" unnecessary and gives pads longer life. They can be used immediately after inking and are lint free.

Sanford Ink Co., 2740 Washington Blvd., Bellwood, Ill. (Item 20)

Descender

This descender has a capacity of 500 lbs. and was specially designed for window washing service on

modern buildings. It is electrically operated by pushbuttons on the platform for up and down and horizontal movement. When not in use it is moved back out of sight by means of a turntable.

Economy Engineering Co., 4519 W. Lake St., Chicago 24. (Item 21)

Mobile Ladder Truck

A new mobile ladder-truck designed to cut costs in the maintenance zone between 7 and 14 feet is now available.

With an overall height of 78 inches, length of 42 inches and width of 26 inches, the ladder-truck is easily rolled to the job. It also serves as a work platform, with no chance for horizontal movement. A lightweight

auxiliary platform may be bolted to the top step for additional height.

The Safe-Lad is fabricated with steel and arc welded. Base unit and

ladder sides are made of cold rolled steel in a box channel design. Steps are diamond tread plate steel. All metal receives a rust-resistant treatment and painted portions are finished in hard durable metal.

Safe-Lad Mfg. Co., 1001 S. E. Morrison, Portland 14, Ore. (Item 22)

Plastiglass Safety Hat

This safety hat is said to be particularly effective in guarding against falling objects, electrical shock and dripping fluids. It has strength to exceed impact of 40 foot

lbs. The high dielectric properties give insulation protection; the resilient material is moisture proof and will not crack or break, according to the manufacturer. Universal cradle adapts one hat to all sizes and cradle suspension of crown provides maximum shock absorption. The space between cradle and crown give air-conditioned comfort.

Welsh Mfg. Co., 11 Magnolia St., Providence, R. I. (Item 23)

Fire Extinguisher

A fire extinguisher that functions effectively at temperatures of—65 F. has been developed. Originally designed to meet U. S. Air Force specifications for the Arctic and other cold weather areas, the extinguishers are claimed to have a special rubber hose that is able to withstand the extreme cold without stiffening or cracking. Nitrogen rather than carbon dioxide is used to dispel the extinguishing agent, which is a dry chemical.

The units are available in 4-pound and 20-pound capacity hand portable units and 150-pound and 350-pound wheeled units. They are equipped with special nozzle and puncture pin seals to insure proper operation in extreme cold. They may also be ordered with special low temperature hose for temperatures below—40 F.

Ansul Chemical Co., Marinette, Wis. (Item 24)

Foot Iron

A new safety aid of interest to any trade in which earth is turned by hand is a foot iron designed to protect both the shoe sole and foot of the user against the edge of a spade or shovel. The iron, according to its manufacturer, prevents foot injuries

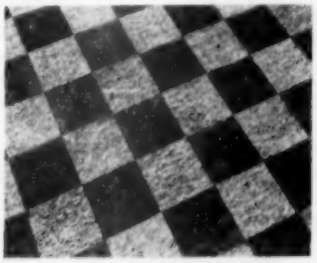
and broken shoe shanks, while making it possible to use greater force in digging. It is made of 12 gauge cold rolled steel and is available in one size to fit any shoe.

Atlas Foot Iron Co., 911 S. Halsted St., Chicago 7. (Item 25)

Rubber Floor Tile

A new rubber floor tile with a tweed-textured surface has been developed. Known as "Do All Tweed Corded Rubber Tile," it is nonporous and dirt cannot become embedded, thus reducing maintenance requirements.

The tweed-textured surface is obtained by a new process, using a



special rubber compound which is extremely durable and fade-resistant. It is resilient and has high sound-absorbing qualities.

The tile is available in three colors and three sizes—may be applied directly to concrete, wood and steel floors. No felt or paper is needed between tile and floor.

American Mat Corp., 1724 Adams St., Toledo, Ohio. (Item 26)

Water Pick-up Machine

A water pick-up machine has recently been perfected that is said to dry floors very rapidly. The heavy duty frame and carriage is constructed of ¾-inch hot rolled steel with handles that rise to a height of 42 inches. Attached to the front of the frame are two squeegee blades, adjustable to from 2 to 4 foot widths. The entire frame rides on two 8-inch wheels equipped with semi-pneumatic tires.

Power is derived from a Lamb AC-DC motor, 1½ hp. The dryer can be used on all types of floors including wood, cement, rubber, asphalt, marble, etc.

The dryer can be used as a regular vacuum cleaner by simply lifting the vacuum from the frame and setting it on its own castors.

Wells Research & Engineering Co., 1068 Greenview Ave., Desplaines, Ill. (Item 27)

Power Street Sweepers

Four new models of power sweepers for industrial use are now available. All four models feature "Filter-Vac" dust control with easily removable dust bin, automatic dumping, large hopper capacity, 20-inch curb brooms and electrically welded heavy plate steel construction.

The range of sweeping paths is from 24 to 58 inches with a maximum sweeping coverage of over 100,000 square feet per hour.

Wayne Mfg. Co., Pomona, Calif. (Item 28)

Car Door Puller

The Lug-All car door puller illustrated eliminates the use of heavy

tools and crow bars—opens box car doors safely and quickly.

The manufacturer reports that the puller may be rigged by single cable for extra long reach or double cable to provide extra power on really tough box car doors. An eye bolt and clevis hook combination at the end of the frame permit right angle anchorage on projecting parts of the box car. The safety handle will bend before the car door puller can be dangerously overloaded.

Lug-All Co., Haverford, Pa. (Item 29)

Ear Protectors

Straightaway sound protectors are a new type of device worn for preventing the harmful effects of noisy occupations. They screen out high-frequency noises, but voices are audible to the wearer.

Sound protectors muffle the ears

and the adjacent bony structure which also transmits sound. They are sanitary and comfortable. Soft vinyl foam pads are held on externally, fit snugly and conform to ear contours. Available in both helmet and headband models. Some are equipped with earphones which connect to communications systems.

American Optical Co., Safety Products Div., Southbridge, Mass. (Item 30)

Floor Mats

An industrial and commercial mat has been designed to reduce fatigue and slipping hazards. The product is called Neo-Sponge comfort mat and is made of Dupont neoprene.

Its properties include: permanent

resilience, high electrical resistance (61,000 volts before puncture), and high resistance to acid, oil, grease and heat. It is said the mat will outwear rubber and will not absorb any liquid or vapor. The molded tread design on both sides makes it reversible and offers non-slip foot traction.

American Floor Products Co., 4922 Wisconsin Ave., N. W., Washington 16, D. C. (Item 31)

Fire Extinguisher

The manufacturer of "Redi-Jet" reports that no inverting or bumping is necessary for operation of this new type fire extinguisher. It is a one-hand operated stored pressure unit, filled with 2½ gallons of water or anti-freeze solution. Discharge is accomplished with a one-hand squeeze-grip operating lever located at the top of the extinguisher. The pressurized water or anti-freeze is released in a stream that carries 35 feet or more. "Redi-Jet" is effective from —40 F to 120 F. It has been approved by Underwriters' Laboratories, Inc., for use against wood, paper, rubbish and all other Class A fires.

The extinguisher features a one-piece seamless drawn 85-15 brass shell with corrosion proofed interior and solid brass fittings. The shell is leakproof: 450 psi hydrostatic test.

Stop-Fire, Inc., 125 Ashland Pl., Brooklyn 1, N. Y. (Item 32)

Water Cooler

The Puro compartment-type water cooler (Model TC-8X) provides the conveniences and advantages of a compartment-type water cooler with added features that make it safe for

use in hazardous locations. They have been made explosion-proof by enclosing all electrical components.

This model combines the bubbler-top and refrigerated cold storage compartment for beverages and food. It contains two ice cube trays, and a drain for condensation. It is equipped with cabinet-type lock and operates on either AC or DC current. Dimensions are 47½ inches high, 23¼ inches wide and 17⅞ inches deep.

Puro Filter Corp. of America, 51st Ave. and 21st St., Long Island City 1, N. Y. (Item 33)

Extinguisher Servicing

A product known as the Extinguisher Servicing Device has been designed for use by industrial firms maintaining fire extinguishers and by extinguisher servicing organizations. This device enables one man

to remove an extinguisher head in a matter of seconds. It consists of a stainless steel impact wrench and adjustable aluminum gripper base. To remove the head, the extinguisher is placed on the gripper base and locked into position by a foot controlled "brake," adjustable for 1½ and 2½ gallon fire extinguishers. Through a swinging action in the handle, impact for jarring loose the head is achieved without damage to the extinguisher, head-threads or operator.

Central Safety Equipment Co., Philadelphia 25, Pa. (Item 34)

Aluminum-Coated Fabric

Development of a new fabric for use in protective garments for in-

dustrial hot jobs is reported. A thin aluminum coating is applied on a light asbestos fabric base to protect the wearer by reflecting radiant heat instead of insulating against it. Molten splatter rolls off the garment instead of collecting and adding

weight. The material is light in weight and allows freedom of movement.

Minnesota Mining & Mfg. Co., Dept. GS-24, 900 Fauquier St., St. Paul, Minn. (Item 35)

Mirro-Vue Mirror

A unique medium for sales messages is the new Mirro-Vue attachment for the National hand dryer. It appears to be an ordinary mirror, but 10 seconds after the dryer button has been actuated, the Mirro-Vue flashes a message which is in

view until the drying cycle is completed. The illuminated message appears to be printed directly on the mirror, but what is actually seen is a photograph or sheet of paper which has been placed inside the Mirro-Vue unit. It is transparent so that this material will show through.

The Mirro-Vue is designed to match the National hand dryer, but is a separate unit that may be used with new or old dryers. It is unbreakable, will not chip or crack.

National Dryer Sales Corp., 616 W. Adams St., Chicago 6. (Item 36)

News Items

Mathias Klein & Sons, pioneer Chicago manufacturer of tools and equipment for the electrical industry and hardware field, announces the appointment of Jack D. Bruce as Sales Representative for the East Central States.

Mr. Bruce's background is one of close association with electricians' tools and equipment. Before joining Klein, Mr. Bruce did circuit wiring and trouble shooting for the City of Chicago. Much of the territory Mr. Bruce will cover was previously serviced by the late Jack McAmis.

W. E. Tromanhauser, president of the Buffalo Fire Appliance Corp., of Dayton, Ohio, announced the appointment of George H. Boucher as vice-president. Mr. Boucher was associated with the Pyrene Manufacturing Company for many years and played an important part in developing and establishing its distributing organization. He will assist Mr. Tromanhauser in developing, increasing and broadening sales outlets.

* * *

Formation of Wynko Manufacturing Corp., a Tennessee corporation, to design, manufacture and sell industrial work clothing of Dynel and blended fabrics was announced recently by R. J. Kohn, president, at the new firm's national sales headquarters, 175 Main St., White Plains, N. Y.

The firm will utilize the manufacturing facilities of Southern Athletic Company. H. D. (Breezy) Wynn, president of Southern Athletic, is to be treasurer of the new company. Other officers are Matlock Hays, vice-president, and L. L. Fisher, secretary.

* * *

Ampco Metal, Inc., of Milwaukee, has announced the appointment of the St. Catharines Brass Works, Ltd., St. Catharines, Ontario, Canada, as a distributor of several Ampco products.

The appointment of the Hays Supply Co., of Memphis, Tenn., as a distributor for Ampco centrifugal pumps has been announced by the Pump Division of Ampco Metal, Inc.

The Resistance Welding Division of Ampco Metal includes the following new distributors: Brady Supply Corp., Elmira, New York; C. D. Genter Co., Chattanooga, Tenn; Keen Machinery Co., Cincinnati, Ohio; Walter Pestrak, Cortland, Ohio; Georgia Supply Co., Jacksonville, Fla.

The Gulf Welding Equipment Co., 1133 Magazine St., New Orleans, has been appointed exclusive distributor of Ampco Metal products in the New Orleans trading area.

* * *

The appointment of Jesse A. Giles to manager of the Toronto Plant of A. Schrader's Son, Division of Scovill Manufacturing Company, Inc., is announced by Schrader, makers of tire valves and air control products.

Mr. Giles started with Schrader, Canada, as foreman of the Valve Core Department in 1930, transferred as assistant to the superintendent, Birmingham, England, branch in 1934 and returned to Toronto as superintendent in 1935.

* * *

Donald H. Storey has been appointed assistant manager of the Schrader Tire Valve Manufacturing Plant in Toronto, Mr. Storey started with the Schrader Company as service manager in the Canadian Branch in 1949, and was appointed sales manager in 1951.

* * *

Medical Supply Co., Rockford, Ill., announces the appointment of Richard G. Babbit to the position of general sales manager. Mr. Babbitt has been with the company since 1946 in various sales capacities and assumed his new position on January 1, 1955.

* * *

Richard P. Whitney has been appointed assistant general sales manager. He has been associated with Medical Supply Company for the past five years serving in various purchasing and sales capacities.

* * *

The Minneapolis-Honeywell Regular Co., has opened a branch office at 5719 Calumet Avenue, Hammond, Ind. O. V. Spousta has been appointed branch manager. The office will service a vast area including all or parts of five counties in northeastern Illinois as well as Lake and Porter counties in Indiana.

You Can't Fall
IT'S A LIFE SAVER

IT LOCKS—IT HOLDS

SAFETY DEVICE FOR LADDERS

Prevents death and injuries from falling.

Inexpensive: Easy to install. Clamps to ladder rung or structures with peg steps or framework, etc. No welding or cutting.
Automatic: Positive. Will catch workman if he starts to fall even if unconscious.
Simple to operate: No upkeep. Requires no attention from climber.
Notched rail **hot dipped galvanized.** Entire equipment rust and corrosion proof.
In use throughout country and abroad for approx. 6 years.

Patented. Manufactured only by
SAFETY TOWER LADDER CO.
1024 Burbank Blvd. P.O. Box 1052
BURBANK, CALIFORNIA

POISON IVY, OAK, SUMAC lose their "sting" when your workers are equipped with either of these two products most widely accepted by industry . . . and manufactured for the unit system exclusively by MSco: Unit A-17 POISON IVY OINTMENT—the original and most widely used treatment by industry; Unit A-20 ZIRCREME—the new product containing *Zirconium*, the latest medically proved treatment with quick results for poisonous plant dermatitis. See your MSco distributor, or write for free clinical data and plant identification guide.

MSCO
MEDICAL SUPPLY COMPANY
Rockford, Ill., In Canada, it's Safety Supply Co.

The Beaver Art Metal Corp., Ellwood City, Pa., designers and manufacturers of tubular steel scaffolding and materials hoisting towers, has announced a corporate name change which took effect January 1, 1955. At that time the company became identified as Beaver-Advance Corp.

Ralph W. McGrew, president, states that the change will have no bearing on existing company policies, and that the firm will continue to market building construction and maintenance equipment through its existing nation-wide distributor network.

* * *

Promotion of Robert C. Olney to Eastern Regional sales manager of commercial trades, reflective products division, has been announced by the Minnesota Mining & Manufacturing Co.

Mr. Olney's office will be in the divisions new sales office and display room in the First National Bank Building, Chicago. Mr. Olney joined Minnesota Mining in 1948 as a sales correspondent and became a salesman in 1949. Since 1951 he had been a reflective products sales manager in New York.

* * *

The Industrial Crane & Hoist Corp., manufacturers of overhead cranes, monorail systems and crane runways announce the appointment of Lewis W. Bentley as manager of its Detroit office, now located at 18431 James Couzens Highway, Detroit 35, Mich.

The Not-so-Good Old Days

Maintenance and repair men used to make press maintenance a dangerous job. They used to work on presses without removing fuses from the fuse box. They used to stand on boxes or tote pans piled up when making repairs.

In the old days mechanics wore their old worn-out dress shoes on the job when moving heavy machine parts. Operators used to put their hands in dies. Setup men used to leave tool guards off the tools. Tools without liner pins were a common sight.

Operators used to be put on the job without training. They had an item called double heading. Flywheels used to fall off because of lack of preventive inspection and maintenance. Press frames used to fall apart because of overloading.

Gosh, those must have been dan-

BONE-DRY
STEEL TOE SAFETY SHOES

The most famous name in outdoor footwear

Special Bone-Dry construction for most comfortable safety shoe ever built. Workers wear them with pleasure the year 'round. 18% stronger! Cost *less* to wear! Write for complete illustrated folder.

BONE-DRY SHOE MFG. CO.
TACOMA, WASH. NEOSHO, MO.

NO-FOG
Lens Cleaning Tissues

USE JUST WATER
NO CHEMICALS NEEDED

4 Boxes—1000 Tissues Each
Size 4½" x 10¾"—$7.00

Complete with Bottle & Sprayer
Price — $5.45

This new, chemically treated tissue is low in price and does away with expensive chemical sprays.

Cleans and no-fogs goggles, eyeglasses and welding lenses with the addition of water only.

Tissues can be used several times.

Contact your nearest jobber or write us for samples and literature.

Distributors wanted. Write for proposition.

CARHOFF COMPANY
11706 Kinsman Ave. • Cleveland 20, Ohio

NEW 1955 FREE

36 Page CATALOG of INDUSTRIAL AWARDS and INCENTIVES is YOURS FOR THE ASKING!

Write for FREE COPY TODAY!

1933 series is available in over 40 titles. ¼ inch diameter, hard glazed enamel, heavily gold plated pin and safety lock catch. $10.50 per dozen (plus F.E.T.)

WILLIAMS JEWELRY & MFG. CO.
Dept. N54, 10 S. Wabash Ave.
CEntral 6-5018 Chicago 3, Ill.

COTTERMAN
WELDED STEEL SAFETY LADDERS
For Filing Rooms—Stock Rooms—Vaults

SAFE • STRONG • EASY TO MOVE • EASY TO CLIMB • NON-SKID STEPS

45"—5 Step

New improved design now being made from 1" diam. round furniture tubing.

Mounted on Swivel Brake Casters which allow the ladder to be rolled freely when no one is on it. When you step on the ladder the rubber cushioned legs rest on the floor and prevent rolling.

Made in 7 heights: — 18" 2 Step, 27" 3 Step, 36" 4 Step, 45" 5 Step, 54" 6 Step, 63" 7 Step, 72" 8 Step.

All are made in 18", 20" or 24" width. Send for Circular No. 53-N and prices on these ladders and our full line of Wood Rolling Ladders.

Manufactured by

I. D. COTTERMAN
4535 N. Ravenswood Ave. Chicago 40, Ill.

gerous days. Glad I didn't have to live then. Wonder why it took so long to get wised up?

—*Power Press & Forging Section Newsletter, NSC*

Hearing in Industry On AMA Program

Dr. Hugh A. Kuhn, secretary of the AMA Section of Otolaryngology and Dr. Frank Princi, secretary of the Section on Preventive and Industrial Medicine and Public Health, announce a joint meeting of these Sections at the Atlantic City meeting of the AMA on Thursday June 9.

This session will be in the form of a mock trial directed by Dr. Howard House of Los Angeles, entitled "IT COULD BE YOU," and it is being given under the auspices of the Sub-Committee on Noise in Industry of the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Olotaryngology.

Cases for Comment

—From page 12

Decision. This case should be included in the company industrial injury rates as an industrial fatality on the basis that this injury arose out of and in the course of the employment. The Committee did not believe that this employee's action could be considered as having taken him out of his employment at the time of his death.

Comment. The problem here concerns whether safety instructions alone will prevent injuries. This incident supports the need for constant supervisory control of all physical conditions connected with the job at hand. No matter how good your rules and regulations and training procedures may be, they cannot be initiated and then forgotten about. This also indicates the need for education of employees to "be your brother's keeper." Individual workers should be kept constantly aware of safety rules and regulations and asked to cooperate in seeing that they are complied with.

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TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

1. Anti-Slip Floor Waxes: Illustrated brochure tells how tiny particles of "Ludox," a colloidal silica, surround softer wax particles, giving skid resistance and greater hardness, without impairing the basic qualities of gloss, freeze-resistance, water-resistance, and leveling. E. I. du Pont de Nemours & Co., Inc.

2. Welding Accessories and Safety Equipment: Catalog shows a diversified line of welding helmets, hand shields, electrode holders, weld cleaning hammers, protective clothing and many other items. Fibre-Metal Products Co.

3. Safety Shoes: Bulletin illustrates a complete line of heavy duty steel toe safety shoes and boots designed for oil men, loggers, men in the construction field, steel plants, etc. One of the features shown is the elimination of binding over the toes. Bone-Dry Shoe Manufacturing Co.

4. Safety Awards: This attractively illustrated catalog lists an entire line of trophies and awards which can be used for acknowledging safety achievements. Plaques, emblems, medals and other types of awards are listed and described in full with specifications for each kind given. House of Williams.

5. Sound-Level Meter: Bulletin specifications of portable sound level meter for measuring overall intensity of noise and sound. Has vibration measuring accessories for vibration acceleration, velocity and displacement. Herman Hosmer Scott, Inc.

6. Skin Toughener: Bulletin shows how skin toughener prevents athlete's foot by restoring the skin's natural resistance to fungus attack. Onox, Inc.

7. Coated Work Gloves: Brochure illustrates five types of plastic coated gloves. Chart shows resistance to various chemicals. Shows how testing procedures assure glove quality. Sarjanian Glove Co.

8. Drinking Water Service: Paper cups, with or without imprinted safety messages, cup dispensers, portable water tanks, stationary water tanks subject of bulletin. Specifications and advantages to personal hygiene noted. United States Envelope Co.

9. Protection Guide for Hazardous Gases: Folder gives comprehensive list of 433 gases, fumes, mists and dusts in operations where a gas mask should be worn. Included is descriptive information, limits for determining safe working conditions, and listing of the type of canister designed for each specific hazard. Acme Protection Equipment Co.

10. Safety Signs: Pamphlet features baked enamel or porcelain enamel safety and traffic signs. Displays and plaques, blackboards and changeable bulletin boards also described. Moore Signs, Inc.

11. Shoe Saver: Featured in this bulletin is a Silicone water repellent and leather preserver that protects and preserves shoes, leather oil guards and gloves. Makes shoes last longer, keeps leather soft and flexible. Rochester Safety Equipment Co.

12. Breathing Equipment for Underwater: Central topic of this bulletin is an air-breathing device composed of mask, hose, air-filled cylinder and necessary regulating equipment. Designed for such operation as underwater marine repairs, construction, inspection, etc. Its full-face mask permits easy, natural breathing through nose or mouth and enables workers to converse under water. Scott Aviation Corp.

13. Barrier Cream: Booklet discusses barrier cream to protect workers from contact dermatitis due to primary irritants (acids, alkalis, solvents, oil) and sensitizing agents (nickel, rubber, chromates, poison ivy). Gives list of many irritants and the type of cream recommended. Ayerst Laboratories.

14. Industrial Television: Illustrated and described in this bulletin 1136, is a wired television unit for industrial use. Designed to allow remote-control operations where direct visual checks are impossible, the television system is dealt with in detail. Included are specifications, applications, technical information and general information. Diamond Power Specialty Corp.

15. Floor Machines: Three models of floor maintenance machines with various attachments in this four-page bulletin. The attachments include polishers, scrubbers and dry scrubbers. The different applications, specifications and design-features of the different models are described in the bulletin. Waxes, sealers and cleaners described. Finnell System, Inc.

16. Dry Chemical Extinguishers: New quick-acting fire extinguishers of the dry chemical type in 20 and 30 pound sizes are covered in this four-page bulletin. Randolph Laboratories.

17. "Insect Control": 32-page booklet fully describes and illustrates industrial insects; how to identify them, how to control them; their life stage, etc. Featured is the company's wheeled insect sprayer which converts insecticides into finely atomized highly-concentrated fog. One filling is said to fog 400,000 cubic feet. Hand gun attachments can be used for spraying smaller areas. West Disinfecting Co.

18. Sectional Scaffolding: Steel sectional scaffolding containing special safety features is described and illustrated in this bulletin. The folder contains information about both ladder and rolling types of sections, pictures on-the-job applications, specifications and illustrations of some of the structures possible with the various sections. Waco Manufacturing Co.

19. Welding Curtains: Flame and waterproof canvas welding curtains designed to confine the welding operation to a given area are discussed in this bulletin. Eyelets permit attachments by hooks or cords for placement. Salvage covers, used to protect equipment from water, dust and snow are also covered. A. Smith & Son.

20. Motorless Floor Sweeper: Bulletin describes a mechanical motorless sweeper which is designed to brush up floor dirt into its self-contained hopper. Among advantages claimed are lightness, ease of operation, no risk of fire, fewer repairs, one-man operation and a side brush for thorough cleaning even against walls and in corners. Handling Devices Co.

21. EAR VALVE: Bulletin pictures an ear valve which admits conversational tones but automatically closes to protect the ear from sudden, loud noises or the discussion from explosions. Fits comfortably into ear canal. Sigma Engineering Co.

22. Safety Cans: A full line of safety containers for the dispensing of flammable liquids is described in the bulletin. Storage bins, towel and oily rag bins also featured. Approved by Underwriters' Laboratories, the metal containers have self-closing caps, and a flame baffle. The bulletin includes construction data, styles and sizes available. J. D. Polis Manufacturing Co.

23. Safety Equipment Catalog: 20-page, 2-color catalog fully describes and illustrates company's line of safety products. Shown are: protective headgear, first aid kits, safety step, safety hooks, protective hoods, purifiers, respiratory equipment and safety belts. The back page of the catalog lists all of the addresses and phone numbers of company's distributors.

24. Gratings and Treads: This four-page illustrated bulletin describes electro-pressure welded gratings and stair treads. The bulletin shows various styles available and includes a table of safe loads and other specifications. Reliance Steel Products Co.

25. Sling Chain Data Book: A "how to do it" handbook on sling chains, including everything from how to order sling chains to their care, use and inspection is presented in a well-illustrated easy-to-read format. The 32 pages offer diagrams, charts and tables on standard and special styles of sling chains and attachments, and their sizes, weights and working load limits under many conditions of use. Columbus McKinnon Chain Corp.

26. Punch Press Safety Tools: A 12-page catalog folder contains specifications and prices on a wide variety of aluminum and magnesium safety tongs, pliers, tweezers and drop forged steel tongs. W. I. Martin & Co.

27. Fire Protection Equipment: Catalog No. 60 illustrates and describes portable tower and ladder pipe nozzles, roof, smoke stack and cellar nozzles, shut-off nozzles and playpipes, high-pressure shut-offs and gates, Siamese connections and hydrant gates and the invincible nozzle. F. N. McIntire Brass Works.

28. Rolling Ladders: The company's line of wheeled ladders is covered with illustrations, diagrams, specifications and uses outlined in this 4-page brochure. Straight, bent and swivel side ladders, rolling step-ladders, library and store ladders and ceiling or overhead ladders are listed. R. W. Fieroh Co.

29. Safety Floor Maintenance: The safety, appearance and economy of the Legge system of floor maintenance are emphasized in this ready reference folder of the company's products. Included are brief descriptions of their floor cleaners, polishes, seals, damp sweep tool and floor machines. Of particular interest are conductive floors and anti-static devices, a slip-resistant powder for sprinkling on wet floors, and non-skid resurfacing mastic. Walter G. Legge Co., Inc.

30. Portable Watchclock: Just how a watchman's clock works, how a watchclock system watches the watchman and thereby reduces insurance rates for users, is detailed in this folder. The watchclock system affords extra protection against fire, theft and sabotage. Chicago Watchclock.

31. Porcelain Enamel Signs: 8-page, 2-color brochure illustrates and describes company's line of porcelain enamel signs. Featured are safety signs, street signs, highway markers, advertising signs, etc. United States Porcelain Enamel Co.

32. "Aluminized Heat-Resistant Industrial and Fire-Fighting Clothing": Catalog containing detailed description and technical data pertaining to the newly developed Fyre-Armor garments for use in industry where workmen are subjected to high heat radiation, and in form of proximity and rescue suits and firemen hoods for the industrial and municipal fire rescue squads. Far-Ex Corp.

33. Antiseptic Protective Cream: A protective skin cream for use against irritants in cutting oils, solvents, thinners, paints, etc., is described in this folder. To prevent bacterial infection, the cream also contains hexachlorophene. C. B. Dolge Co.

34. Changeable Letter Signs: Catalog of bulletins shows several different styles of changeable letter displays and mounting equipment. Letters may be metal or plastic and free standing or locked to a rail. Many typical signs and displays shown and a list of slogans is given. Wagner Sign Service, Inc.

35. Emergency Lighting Unit: Selection of emergency lighting equipment subject to pamphlet. Features of unit shown with schematics, layouts, and illustrations of typical installations. Electric Storage Battery Co.

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WANT to get folks talking and thinking about highway safety? Then just hand them a copy of Highway Zoo. The Council's new 4-color booklet is a conversation piece. Ideally suited for use in off-the-job accident prevention programs, it will give zip to your safety efforts. And it is one book you can use as a souvenir item at your Safety Award Banquet, safety conference, etc. Many firms will use them in 1955 as mailing pieces. It will fit your program to a "T."

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Printed below are two identical Reader Service postcards—the bottom one for your use; the top one for later readers of this issue. The numbers listed on each card are keyed to product advertised and the new safety equipment and trade publications described on pages 119 through 129. Just circle the items you want to know more about, and we will ask the manufacturer to send you full information without obligation. Both cards are perforated for easy removal, and no postage is required.

New Safety Equipment

Products featured in this section have been carefully reviewed by Council engineers so as to bring you only what's new and reliable in the safety field. Only new safety and health products, or newsworthy improvements in existing equipment are eligible for listing.

Trade Publications

Here's a wealth of helpful trade literature — catalogs, spec sheets, booklets, brochures — that will help you compare before you buy. Whether you are in the market now, or think you may be at a later date, you'll want these valuable references in your safety equipment data file.

Products Advertised

As you read through this issue of the NEWS, you will find advertisements describing equipment that may help you solve some of your accident problems. Instead of making a "mental note," make sure you get full information by circling the corresponding page number on the Reader Service postcard. The letters L, R, T and B locate the ads on the page—left, right, top and bottom. IFC—inside front cover; IBC—inside back cover; BC—back cover.

IMPORTANT—Be sure to fill in your name, organization and address in the space provided on this side of the postcard.

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(Good until June 30, 1955)

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The advertising policy of the NEWS requires that all equipment and products meet established codes and standards, have the approval of recognized testing agencies, or have proven their value through actual use in industry. Council engineers and technicians screen every advertisement to make sure that product description is accurate, and performance claims verified by reliable sources. It should not be construed, however, that products advertised are approved or endorsed by the National Safety Council.

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No. 100
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†T.M. Reg. by American Optical Company

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